



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

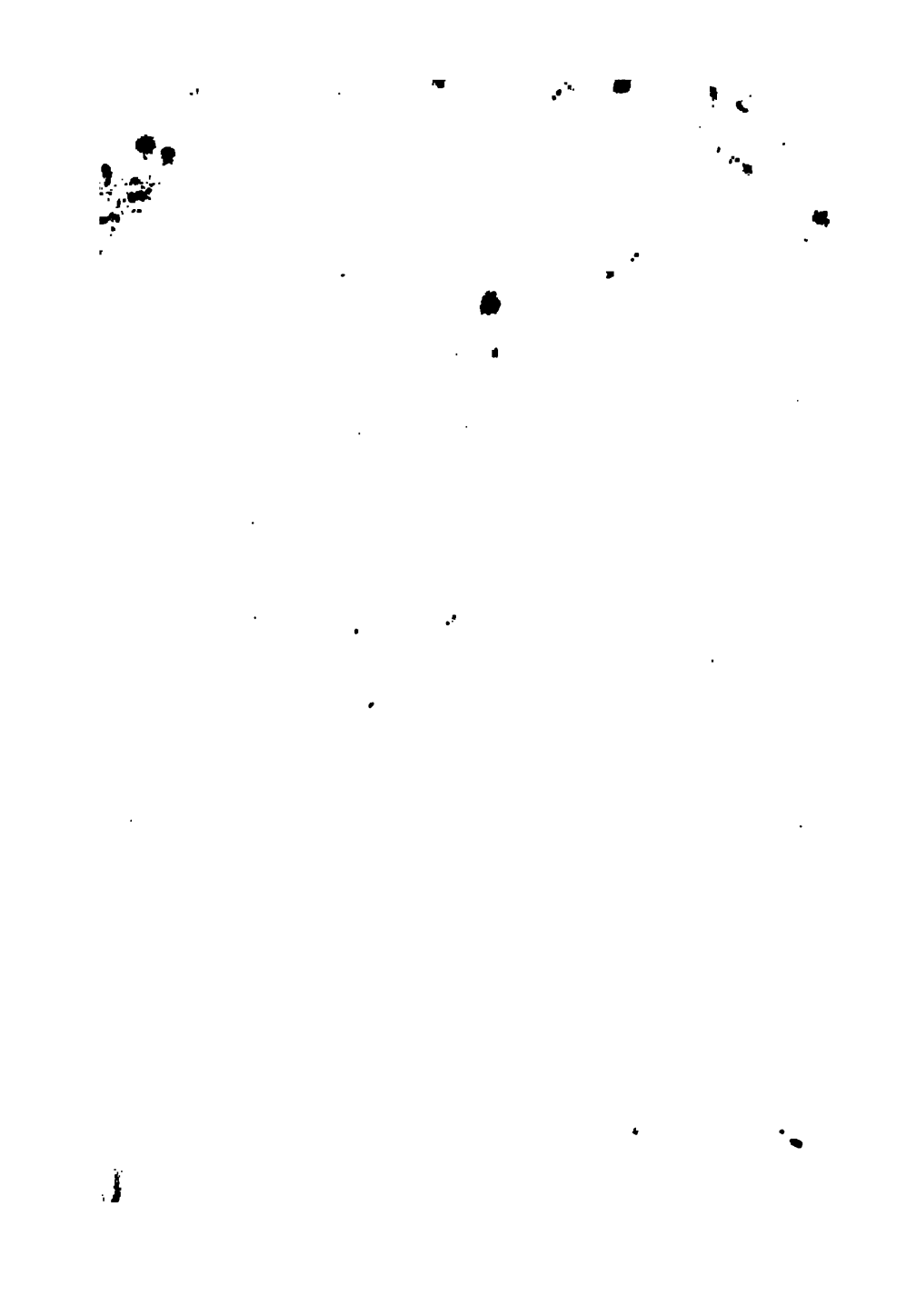
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

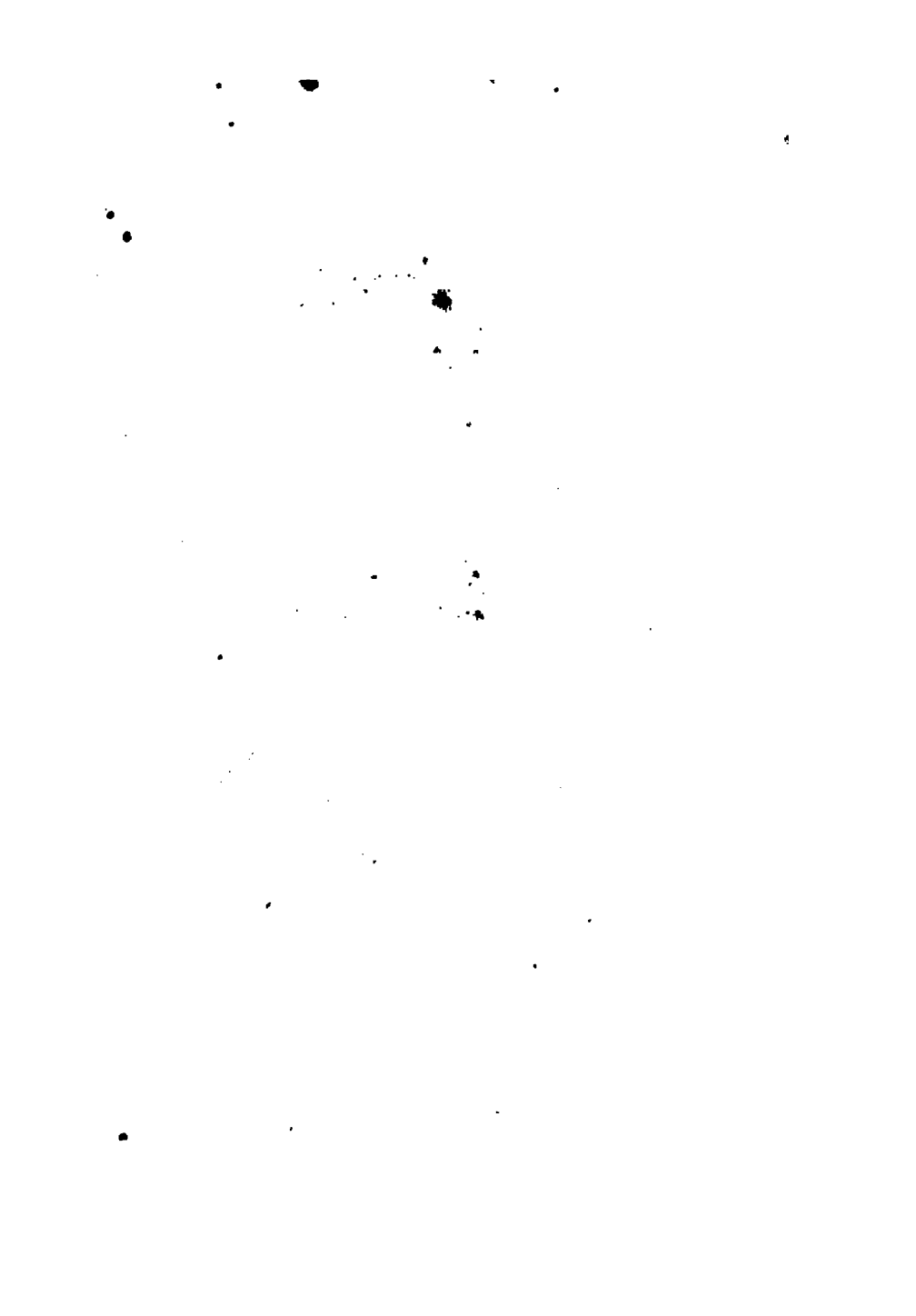


pt. 19/2



600031881R





PATENTS FOR INVENTIONS.

ABRIDGMENTS

OF

Specifications

RELATING TO

PHOTOGRAPHY.

PART II.—A.D. 1860-1866.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.

SECOND EDITION.



LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

PUBLISHED AT THE

OFFICE OF THE COMMISSIONERS OF PATENTS FOR INVENTIONS,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

1872.

176 i. 56.



P R E F A C E.

THE Indexes to Patents are now so numerous and costly as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the printed copies of the latter are sold have been added.

The number of Specifications from the earliest period to the end of the year 1866 amounts to 59,222. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct inventions, and many of those filed under the new law of 1852 indicate various applications of the single invention to which the Patent is limited. Considering, therefore, the large number of inventions and applications of inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions, as may from time to time become apparent, will be supplied in future editions.

This volume is a continuation of the "Abridgments of Specifications relating to Photography" already pub-

lished, and brings the Abridgments to the end of the year 1866. From that date the Abridgments will be found in chronological order in the "Chronological and Descriptive Index" (*see* List of Works at the end of this book). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place, the reader (by the aid of the Subject-matter Index for each year) can continue his examination of the Abridgments relating to the subject of his search in the Chronological and Descriptive Index.

The following quotation from the Preface to the first part also applies to the present volume.

"The Specifications included in this series of inventions relate :—

" 1st. To the processes of Photography.

" 2nd. To the chemical, optical, and mechanical apparatus used in the practice of the art, or its applications.

" 3rd. To the various applications of Photography.

" 4th. To the camera obscura, so far as its use for photographic purposes is concerned.

" 5th. To the stereoscope; this instrument depends upon the results of Photography for its efficient action; it gives to photographs the nearest possible approach to reality; therefore, all Specifications relating to stereoscopes are included in this series."

"The definition of 'Photography' for the purpose of these abridgments is, 'the art of copying designs or images, however they may be produced, by the chemical action of light upon surfaces prepared to receive that action.'"

PREFACE.

v

In the Subject-matter Index, the most recent chemical names of substances are placed (in *Italic*) after the names that have been obtained from the respective Specifications ; this addition is rendered necessary by the general adoption of the new chemical nomenclature.

The Abridgments marked thus (* *) in the following pages were prepared for another series or class, and have been transferred therefrom to this volume.

B. WOODCROFT.

February, 1872.

INDEX OF NAMES.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to the Applicants for Letters Patent. The Roman numerals refer to the Introduction.]

	Page		Page
<i>Abelous, J.</i>	87, 93	Brooman, R. A....	2, 15, 25, 34,
Airy, G. B.....	xvii, xviii	36, 41, 43, 49, 53, 58, 59,	
Albites, P. M. T. O. C.....	6	63, 72, 90, 100, 113	
<i>Albites, P. M. T. O. C.</i>	13	Brown, W.....	23
<i>Alden, C.</i>	87	Bullock, E.....	126
Alexander, T.....	18	——, J.....	126
Amphlet, S.....	35, 59	Bünger, W.....	125
<i>Anthoni, C. G.</i>	20	Bunsen, —.....	xvii
Ashton, R. H.....	139, 159	Capello, —.....	xix
Asser, E. I.....	4	Carlevaris, P.....	119
<i>Avet, H.</i>	122, 136	<i>Carlevaris, P.</i>	130
Baggs, I.....	131	Carter, C. P.....	46
Bailey, W. H.....	109	Cassaignes, V. J.....	63, 75, 82
<i>Baudesson, A.</i>	100	Ceilleur, A.....	73
Baxendell, —.....	xxii	Chambers, C.....	xxii
Beatty, F. S.....	18	<i>Charavet, N.</i>	25
Beau, P. A. A.....	8	Cherrill, N. K.....	xxi
Bennett, T.....	71	Chevallier, F. A.....	105
Bentley, B. W.....	109	Clark, W.....	20, 33, 52, 66, 69,
Bernieri, L.....	154	73, 151	
<i>Billing, F. W.</i>	61	Claudet, A. F. J....	xii, xix, xxi ,
Bing, L.....	149	xiv, 105	
Bliss, E.....	42	Committee of the Board of	
<i>Blot, J. B. S.</i>	66	Trade.....	xxii
<i>Bondonneau, E.</i>	151	Cook, H.....	78
Bonelli, G.....	78, 118	Cornides, L.....	160
Bonneville, H. A.....	89	<i>Corradi J.</i>	63
<i>Bouillette, L. H.</i>	37	Courtenay, R. H.....	155
<i>Bourdin, G. J.</i>	106	Cox, E.....	141
Bourquin, J. P.....	33, 60, 77	Crozat, L.....	103
Brewster, D.....	xiii, xiv	Czugajewicz, P.....	1
Brierley, J. H.....	74	Dagron, A. P. P.....	7
Briges, M. de.....	152	——, R. P. P.....	31
Brinckerhoff, J. de Witt....	123	Dalglish, A. A.....	17
Brooke, —.....	xvii	Dallas, D. C.....	144

	Page		Page
Dallmeyer, J. H.....	101, 134, 146, 150	Gengembre, P. W.....	142
Dancer, J. B.....	xi	George, B. G.....	32
Davies, G.....	82, 132	Gibbons, W. J.....	21
Debenham, W. E.....	38	<i>Gibson, W</i>	124
De Briges, M.....	152	Gillett, H.....	19
De Fontainemoreau, P. A. le		Gilpin, C.....	135
Comte.....	86, 99	Girdler, C. M.....	117
<i>De Lafarge, J. J. L. R.</i>	58, 72	Gittens, A. W.....	91
De la Rue, W.....	xiv, xv, xix, xx, xxi	Goddard, J. T.....	xiv
<i>De Montgolfier, L.</i>	123	Gould, W.....	149
<i>Desbarats, G. E.</i>	118	Grainger, A.....	117
Despratz, —.....	xxiv	Greenwood, B.....	74
<i>De Susini, J.</i>	151	Grisdale, J. E.....	32, 44, 93
Desvignes, P. H.....	3, 83	Griswold, V. M.....	129
Dixey, L.....	57	Grumel, F. R.....	14
Dixon, H.....	26	Grüne, W.....	142, 151, 154
Draper, H.....	xii	Gruner, C. B.....	54
Du Mont, H.....	27	Gye, F.....	107
<i>Du Motay, C. M. T.</i>	90, 113		
<i>Dupuy, J. T.</i>	53	Harrington, J.....	48
Eden, A. F.....	65	<i>Harrison, C. C.</i>	15
<i>Egloffstein, F. Von</i>	127	Harrison, J. A.....	56
<i>Eidlitz, L.</i>	2	Hart, F. W.....	xxiii
Eidlitz, L.....	8	Haseltine, G.....	51
England, W.....	xxiv	Hedler, C.....	143
		Heisch, C.....	xvi
<i>Fargier, A.</i>	25	Helsby, W. G.....	81, 108
<i>Farrenc, L.</i>	49	Henry, M.....	11, 24, 122, 136
Field, L.....	147	Hirst, J., jun.....	50
Flounders, C. F.....	13	Hooman, T.....	27
Fontaine, F. H.....	44	<i>Houbigant, A.</i>	11
Fontainemoreau, P. A., le		<i>Houzeau, P.</i>	100
Comte de.....	86, 99	Hughes, J.....	xxi
Forestier, P. L.....	56	<i>Hypelin, J. A.</i>	37
Fournet, A.....	156		
Fox, T.....	102	James, H.....	xiv
Fruwirth, D.....	95	<i>Jaubert, L.</i>	136
		Jeffreys, C.....	84
Garnett, J.....	47	Johnson, E. D.....	64
<i>Garnier, H.</i>	2	——, J. H.....	106, 164
Gay, D.....	110	——, J. R.....	56
Gebhardt, J. J. H.....	42	Joubert de la Ferté, F. J.....	2
Gedge, J.....	161	Joubert, F.....	xv
——, W. E.....	87, 93	<i>Julien, G. J.</i>	52
		Knight, J.....	25
		——, J. A.....	15

INDEX OF NAMES.

ix

	Page		Page
<i>Korn, C. F.</i>	15	<i>Monat, M.</i>	85
<i>Kossuth, F.</i>	135	<i>Murray, J.</i>	75
——, <i>L. T.</i>	135		
<i>Kugler, —</i>	42	<i>Nadar, —</i>	24
		<i>Nadaud, O.</i>	156
<i>Lafarge, J. J. L. R. de</i> ..	58, 72	<i>Neville, H.</i>	29
<i>Lafon-Saint-Cyr, J.</i>	86	<i>Newton, A. V.</i>	61, 87, 127
<i>Lamplough, H.</i>	42	——, <i>H. E.</i>	136
<i>Lane, F.</i>	157	——, <i>W. E.</i> ..	6, 118, 123, 124
——, <i>K. H.</i>	98		
<i>Laroche, W. S.</i>	139	<i>Obernetter, J. B.</i>	104
<i>Lea, C.</i>	xxi	<i>Obert, L. H.</i>	11
<i>Lee, J.</i>	85		
<i>Leggo, W. A.</i>	118	<i>Pallu, C.</i>	22
<i>Lewis, J.</i>	29	<i>Palmer, J.</i>	159
<i>Liébert, A.</i>	86	<i>Parker, T.</i>	130
<i>Lissengary, H.</i>	51	<i>Pegram, T.</i>	79
<i>Loewy, B.</i>	xx, xxi	<i>Perkins, T.</i>	48
<i>Ludeke, J. E. F.</i>	77	——, <i>W.</i>	67
<i>Luz, P.</i>	23	<i>Petschler, —</i>	xii
		<i>Pettitt, E.</i>	110, 111
<i>Macaire, L. C.</i>	12	<i>Phipson, T. L.</i>	xviii
<i>M'Dougall, A.</i>	xx	<i>Pinard, A.</i>	164
<i>McFarland, C.</i>	146	<i>Plateau, —</i>	xxi
<i>Macfarlane, H.</i>	17	<i>Plessy, E. M. M.</i>	62
<i>McLachlan, L.</i>	47	<i>Pohl, L.</i>	23
<i>Maliszewski, J.</i>	27	<i>Pointeau, J. E.</i>	161
<i>Mann, —</i>	xii	<i>Poitevin, A. L.</i>	73
——, <i>A.</i>	45	<i>Polyblank, G. H.</i>	35
<i>Maréchal, C. R.</i>	113	<i>Pont, B.</i>	161
——, <i>C. R., jun.</i>	90	<i>Ponti, C.</i>	55
<i>Marion, A.</i>	34	<i>Ponti, J.</i>	55
——, <i>C. M. A.</i>	33	<i>Pouncy, J.</i>	70
<i>Marquier, F. L.</i>	59	<i>Prang, L.</i>	90
<i>Martius, C. A.</i>	104	<i>Prout, V. A.</i>	114
<i>Maugey, P.</i>	164		
<i>Medd, H.</i>	152	<i>Reissig, T.</i>	112
<i>Mello, J. A.</i>	20	<i>Reissig, W.</i>	112
<i>Mennons, M. A. F.</i>	37, 62	<i>Rieder, A.</i>	91
<i>Miller, W. A.</i>	xv	<i>Risler, M., the younger</i>	82
<i>Monckhoven, D. C. E. Van</i> ..	89	<i>Roberts, L. A.</i>	90
<i>Monckton, E. H. C.</i>	49	<i>Rogers, W. B.</i>	xi
<i>Mont, H. du</i>	27	<i>Rollason, A.</i>	95
<i>Montgolfer, L. de</i>	123	<i>Roscoe, H. E.</i> ...xvii, xviii, xix,	
<i>Morris, T.</i>	49	xx, xxii	
<i>Morvan, A. G.</i>	43	<i>Rowland, J. A.</i>	115
<i>Motay, C. M. T. du</i>	90, 113	<i>Rowsell, C. J.</i>	84

	Page		Page
Rue, W. De la...	xiv, xv, xix, xx, xxi	<i>Strelisky, L.</i>	107
Russell, S.....	53, 68	<i>Susini, J. De</i>	151
<i>Rutherford, J. C.</i>	6	Sutton, T.....xiv, xvii, 30, 61	
Sabine, E.....xii, xiii, xv, xvii, xxii, xxiii		Swan, H.....	5, 66
Sarony, N.....	88, 92	—, J. W.....	88, 120, 158
—, O.....	126	<i>Tamin, J. M. O.</i>	151
<i>Saugrin, L. F.</i>	41	Taylor, A.....	xxiii
Schloss, J.....	38, 39	<i>Teissonnière, A.</i>	69
<i>Schloss, S.</i>	38, 39	Thomas, R. W.....	94
Schott, J. B.....	96	Thomson, J.....	85
Schottlander, H.....	40	Toovey, W.....	76
<i>Schulze, P.</i>	61	<i>Tournachon, G. F.</i>	24
Secchi, —.....	xx	<i>Truchelut, J. N.</i>	99
Ségoffin, C. D.....	41	<i>Van Monckhoven, D. C. E.</i> ..	89
Selwyn, —.....	xvi	<i>Vasseur, J. B.</i>	11
Seropyan, C. D.....	162	Vernon, W. W.....	98
Shadbolt, G.....	xi	<i>Von Egloffstein, F.</i>	127
Shaw, W. T.....	xiii, 9, 127	Wallis, G.....	10
Sidebotham, J.....	xi	Watson, A.....	79
Skaife, T.....	153	Weare, R.....	49
Skinner, J.....	131	Wells, F. R.....	121
Smith, A.....	xxiii	Wheatstone, —.....	xiii
Smith, G.....	57	Whipple, J. A.....	80
Smith, J.....	12	<i>White, G. G.</i>	87
—, J. H.....	114	Wilcock, J.....	13
—, T. J.....	28	Willème, —.....	xix
—, W.....	51	<i>Willème, F.</i>	69
—, W. H.....	116	Williams, V. V.....	16, 127
Smyth, C. P.....	xviii	Willis, J.....	121
Southwell, F.....	145	—, W.....	xxi, 102
—, F.....	145	<i>Wilson, A. B.</i>	51
—, W. H.....	145	Winstanley, D., jun...133, 157	
Spiller, J.....	xxiii	Wood, J.....	50
Spiller, T.....	163	Woodbury, W. B.....97, 132, 138, 144, 148	
<i>Spooner, J.</i>	146	Woodward, —.....	xii
<i>Steele, B. H.</i>	6	Wortley, A. H. P. S.....	98
<i>Steinheil, C. A.</i>	125	<i>Wothlij, J.</i>	98
Stewart, B....xiv, xviii, xix, xx, xxi		Wray, W.....	140
<i>Strauss, H.</i>	36	Wright, A. J.....	128

INTRODUCTION.

THE advancement of Photography and of its applications, during the seven years embraced by this volume (1860 to 1866) has been considerable. In this Introduction, every paper on Photography, or involving the chemical action of light, that has been read to the Royal Society, within the above-named seven years, is alluded to.

The following notices should have been inserted in its proper place (chronologically speaking) in the Introduction to Part I. of this series of Abridgments.

A.D.

1853. J. B. DANCER, "early in 1853," gave to JOSEPH NICHOLSON two microscopic photographs; "they are about "one sixteenth of an inch in diameter." GEORGE SHADNOLT, in accordance with this announcement, gave up his claim to being the prior producer of "micro-photographs." (See *The Photographic Journal*, edited by George Shadbolt, of April 15, 1859, p. 91; of May 1, 1859, p. 104; and of May 15, 1859, pp. 118, 125, and 126).

The paragraphs that follow are in continuation of the Introduction to Part I., accordingly they resume the chronological arrangement from the beginning of the year 1860.

1860. Professor WILLIAM B. ROBERTS, in June or July 1860, read a paper to the British Association, entitled "Experiments and conclusions on binocular vision." By means of "two slightly inclined luminous lines" "combined into a perspective line," he arrives at the conclusion that the visible direction of an object is not always "in the normal to the point of the retina impressed," "but is felt to be in the middle line" between the two eyes, "that is, in the binocular direction." (See *British Association Report* of the meeting in 1860, p. 17.)

A.D.

1860. A. CLAUDET, in June or July 1860, read a paper to the British Association, "On the means of increasing the "angle of binocular instruments, in order to obtain a "stereoscopic effect in proportion to their magnifying "power." This increase of the angle is accomplished "by adapting to the object glasses two sets of reflecting "prisms." (See *British Association Report* of the meeting in 1860, p. 61.)
1860. A. CLAUDET, in June or July 1860, read a paper to the British Association, "On the principles of the solar "camera." By the use of "the solar camera, invented "by WOODWARD," "small negatives may produce pictures magnified to any extent." (See *British Association Report* of the meeting in 1860, p. 62.)
1860. Dr. HENRY DRAPER, in June or July 1860, read a paper to the British Association, "On a reflecting telescope for "celestial photography, erecting at Hastings, near New "York." A Newtonian reflector is used, so that whatever is the position of the object, the photographic table is always horizontal. Protochloride of palladium is used to darken collodion negatives. (See *British Association Report* of the meeting in 1860, p. 63.)
1860. Messrs. PETSCHLER and MANN, in August 1860, discovered a modification of the collodio-albumen process. The albumen is prepared with a chloride, and the plate is coated with it in the usual manner. The plate is sensitised by washing in water. (See *The Photographic News* for August 24, 1860, p. 195.)
1860. Major-General EDWARD SABINE, on November 15, 1860, read a paper to the Royal Society, upon the "Laws of the "phenomena of the larger disturbances of the magnetic "declination in the Kew Observatory." For the purpose of evolving these laws, a "first approximation" was taken, that was "derived from the photographs in the "years 1858 and 1859, of the self-recording declinometer "of the observatory of the British Association at Kew." "The photographs furnish a continuous record of the "variations which take place in the direction of the

A.D.

"declination-magnet, and admit of exact measurement in the two relations of time, and of the amount of departure from a zero line. From this automatic record the direction of the magnet is measured at twenty-four equal intervals of time in every solar day, which thus becomes the equivalents of the 'hourly observations' of the magnetometers in use at the colonial observatories." (*See Proceedings of the Royal Society*, vol. X., No. 41, p. 624.)

1861. W. T. MUIR read a communication to the Royal Society, which was read on the 10th January 1861; in this communication a new optical instrument called the "stereotrope" was described. In the "stereotrope" the principle of the stereoscope is applied to the phenakistiscope and other similar instruments, so as to give the effect of solidity to the resulting moving image. Either the refracting stereoscope or Professor WHARTON'S reflecting stereoscope may be employed to produce the above-mentioned results; the latter is "better adapted for the exhibition of movements that are not only local but progressive in space." (*See Proceedings of the Royal Society*, vol. XI., No. 43, p. 70.)

1861. Major-General EDWARD MANNING, on January 10, 1861, read a communication to the Royal Society, "On the lunar-diurnal variation of the magnetic declination obtained from the Kew photographs in the years 1854, 1859, and 1860." "The directions of the declination magnet at the instant of the commencement of every solar-hour" were "calculated from the photographs, and the final normals for each month and hour computed." (*See Proceedings of the Royal Society*, vol. XI., No. 43, p. 73.)

1861. Sir DAVID BREWSTER, in September 1861, read a paper to the British Association, "On photographic micrometers." These micrometers were made by reducing a system of sharply defined lines "to the minutest size," and impressing them "upon collodion or albumen photographically." (*See British Association Report of the meeting in 1861*, p. 28.)

A.D.

1861. Sir DAVID BREWSTER, in September 1861, read a paper to the British Association, "On binocular lustre." He believes that the lustre is due "to the effect of the eyes in combining the two stereoscopic figures, and to the dazzle occasioned by the alternating intensities of the two combined tints." (See *British Association Report* of the meeting in 1861, p. 29.)
1861. THOMAS SUTTON, in September 1861, read a paper to the British Association, "On the panoramic lens." This lens has concentric surfaces, and is capable of producing a perfect optical image, "which includes an angular field of 100°." (See *British Association Report* of the meeting in 1861, p. 33.)
1861. J. T. GODDARD, in September 1861, read a paper to the British Association, "On the cloud mirror and sunshine recorder." In the sunshine recorder, the image of a hole in a box carrying photographic paper is imprinted on the paper during sunshine, but not otherwise. (See *British Association Report* of the meeting in 1861, p. 61.)
1861. WARREN DE LA RUE, in September 1861, presented his "Report on the progress of celestial photography" to the British Association. Heliography, as well as lunar and stellar photography, is alluded to. To render the images of the fixed stars visible, it is necessary to put them out of focus. (See *British Association Report* of the meeting in 1861, p. 94.)
1861. Colonel Sir HENRY JAMES, in September 1861, read a paper to the British Association, "On photozincography." An inked gelatine and bichromate of potash positive is transferred to stone or zinc. This process is used to multiply copies of the Ordnance Maps. (See *British Association Report* of the meeting in 1861, p. 263.)
- BALFOUR STEWART sent a communication to the Royal Society, which was read November 21, 1861, "On the great magnetic disturbance of August 28 to September 7, 1859, as recorded by photography at the Kew Observatory." The recording was accomplished by means of the "self-recording magnetographs which are

A.D.

"in constant operation." (See *Phil. Trans.* vol. 151, p. 423; also *Proceedings of the Royal Society*, vol. XI., No. 46, p. 407.)

1862. Major-General EDWARD SABINE, on Feb. 27, 1862, read to the Royal Society. "Notices of some conclusions derived from the photographic records of the Kew declinometer in the years 1858, 1859, 1860, and 1861." The methods and processes employed in the elicitation of the results were fully described in a paper communicated by the author to the Society in 1860. (See *Proceedings of the Royal Society*, vol. XI., No. 48, p. 585.)

1862. F. JOUBERT, on March 4, 1862, read a paper to the Photographic Society "On enamel photographs." A positive picture, made by means of bichromate of ammonia, honey, and albumen, is gently rubbed over with an enamel colour. After the picture is fixed and washed, it is dried and fired. (See *The Photographic News* of March 14, 1862, p. 125.)

1862. WARREN DE LA RUE, on the 10th April 1862, delivered the Bakerian Lecture to the Royal Society, "On the total solar eclipse of July 18th, 1860, observed at Riva-bellona, near Miranda de Ebro, in Spain." About 35 effective photographs of the eclipse were taken by means of the "Kew heliograph;" two totality pictures were obtained (negatives), these showed the rose-coloured prominences with great distinctness. An accurate map of the prominences was made by means of a measuring instrument. The usual collodion process was employed for the negatives; the collodion was iodised in London; hyposulphite of soda was the developing medium. (See *Phil. Trans.*, vol. 152, p. 333.)

1862. Dr. W. A. MILLER, on June 19, 1862, read a paper to the Royal Society "On the photographic transparency of various bodies, and on the photographic effects of metallic and other spectra obtained by means of the electric spark." The following results were arrived at:—1. Colourless bodies, which possess equal powers of transmitting luminous rays, vary greatly in diastinc

A.D.

power. 2. Diactinic solids preserve their diactinic power, both when liquefied and when converted into vapour. 3. Colourless translucent solids, which absorb chemical rays, "preserve their absorptive power with greater or " less intensity both in the liquid and the gaseous " state." 4. When polished surfaces are employed to reflect the chemical rays, an amount and character of absorption is exercised by each metallic and other surface, differing with each surface used. 5. The electric spectra of the principal metals, taken in air, exhibit characteristic points, especially the following:—Silver, thallium, bismuth, antimony, tellurium, manganese, iron, cadmium, zinc, and *magnesium*. 6. In alloys, the presence of each metal is for the most part indicated in the spectrum. 7. When the metals are ignited by the electric spark in various gases, "each gas tinges the spark of a characteristic colour; but no judgment can be formed from this " colour of the kind of spectrum which the gas will " furnish." 8. Lines characteristic of the gas are in most cases produced. 9. "The lines due to the gaseous " medium are continuous." The apparatus used in these researches had a prism of rock crystal, and a quartz lens was attached to the camera next to the prism. (See *Phil. Trans.*, vol. 152, p. 861.)

1862. Professor SELWYN, in October 1862, read a paper to the British Association "On autographs of the sun." These "autographs" were taken with the "heliautograph," which consists of a camera and instantaneous slide attached to a refractor. (See *British Association Report* of the meeting in 1862, p. 17.)

1862. CHARLES HEISCH, in October 1862, read a paper to the British Association "On a simple method of taking "stereomicro-photographs." A microscope, at its eye end, is fitted to a single lens stereoscopic camera; this apparatus is used in connection with a sliding tube that carries a stop which cuts off half the light and can be turned half round. (See *British Association Report* of the meeting in 1862, p. 46.)

A.D.

1862. T. SUTTON, in October 1862, read a "Description of a " rapid dry-collodion process " to the British Association. Bromo-iodised collodion is used in conjunction with gum arabic. (See *British Association Report* of the meeting in 1862, p. 54.)
1862. Messrs. BUNSEN and ROSCOE, on December 11, 1862, read a paper to the Royal Society entitled "Photo-chemical researches.—Part V. On the measurement " of the chemical action of direct and diffuse sunlight." These gentlemen proved, within the limits of their experiments, that "equal shades of blackness correspond to " equal products of the intensities of the acting light " into the times of exposure." A pendulum, in connection with the withdrawal of a sheet of darkened mica from a strip of paper prepared with chloride of silver, and with a millimetre scale, is used to expose photographic sensitized paper for times which can be very accurately measured. To compare a given photographic tint with the point of equal shade on a strip, a sliding board is employed in conjunction with the light of a bright soda flame. In the preparation of a standard sensitive paper, nitrate of silver and chloride of sodium baths are employed; the fixing agent is hypo-sulphite of soda. (See *Phil. Trans.*, vol. 153, p. 139; also *Proceedings of the Royal Society*, vol. XII., No. 53, p. 306.)
1863. G. B. AIRY, Astronomer Royal, on the 23rd of April 1863, read a paper to the Royal Society "On the diurnal " inequalities of terrestrial magnetism, as deduced from " observations made at the Royal Observatory, Greenwich, from 1841 to 1857." During the last ten years of this time "the magnetic indications have been " automatically recorded by photographic self-registration," Mr. BROOKS's photographic apparatus being employed. (See *Phil. Trans.*, vol. 153, p. 309; also *Proceedings of the Royal Society*, vol. XII., No. 56, p. 529.)
1863. Major-General EDWARD SABINE, on June 18, 1863, read two papers (one a continuation of the other) to the Royal Society, on the "Results of the magnetic observation

A.D.

the Kew "Observatory, from 1857 and 1858 to 1862 inclusive.—Nos. I. and II." The laws of the disturbances of the magnetic declination at Kew are derived from photographic records. (See *Phil. Trans.*, vol. 153, p. 273; also *Proceedings of the Royal Society*, vol. XII., No. 56, p. 263.)

1863. Dr. H. E. Roscoe, on June 18, 1863, read a paper to the Royal Society "On the measurement of the chemical " brightness of various portions of the sun's disc." The result obtained (by the use of "standard photographic " paper," in conjunction with "a graduated photographic " strip insulated in the pendulum photometer") was "that the intensity of the chemically active rays at the " centre is from three to five times as great as that at the " edge of the disc." (See *Proceedings of the Royal Society*, vol. XII., No. 46, p. 649.)

1863. BALFOUR STEWART, on the 18th June 1863, read a paper to the Royal Society "On the magnetic disturbance " which took place on the 14th December 1862." This disturbance "was registered by means of the Kew " magnetographs." (See *Proceedings of the Royal Society* vol. XII., No. 56, p. 663.)

1863. Professor C. PIAZZI SMYTH, in August or September 1863, read a paper to the British Association "On a proof of " the dioptric and actinic quality of the atmosphere at a " high elevation." Photographs of distant hills taken at a high level were distinct, and taken at or near the sea level were wanting in details. (See *British Association Report of the meeting in 1863*, p. 25.)

1863. Dr. T. L. PHIPSON, in August or September 1863, read a paper to the British Association "On a new method of " measuring the chemical action of the sun's rays." A solution of sulphate of molybdic acid is used for this purpose; this solution becomes bluish-green on exposure to sunlight, but is colourless at night. (See *British Association Report of the meeting in 1863*, p. 50.)

1863. G. B. AIRY, Astronomer Royal, on December 17, 1863, read a communication to the Royal Society, on the "First

A.D.

"analysis of 177 magnetic storms, registered by the magnetic instruments in the Royal Observatory, Greenwich, from 1841 to 1857." "The photographic ordinates" are converted into numbers. (See *Phil. Trans.*, vol. 153, p. 617; also *Proceedings of the Royal Society*, vol. XIII., No. 59, p. 48.)

1863. BALFOUR STEWART, on December 17, 1863, read a paper to the Royal Society "On the sudden squalls of 30th October and 21st November 1863." "The gas lights in the room which contained the barograph" [worked by photographic agency?] "went out;" the barograph curve, although "incomplete," gives a very rapid rise. (See *Proceedings of the Royal Society*, vol. XIII., No. 59, p. 51.)

1864. SENHOR CAPELLO and BALFOUR STEWART, on Jan. 23, 1864, read a paper to the Royal Society on the "Results of a comparison of certain traces produced simultaneously by the self-recording magnetographs at Kew and at Lisbon." These instruments record the results by photographic means. (See *Proceedings of the Royal Society*, vol. XIII., No. 60, p. 111.)

1864. BALFOUR STEWART, on March 17, 1864, read a paper to the Royal Society, entitled "Remarks on sun spots," in which he says, "In examining the pictures taken with the Kew heliograph under the superintendence of Mr. DE LA RUE, it appears to be a nearly universal law that the faculæ belonging to a spot appear to the left of that spot, the motion due to the sun's rotation being across the picture from left to right." (See *Proceedings of the Royal Society*, vol. XIII., No. 62, p. 168.)

1864. DR. ROSCOE, in March 1864, used the magnesium light for photographic purposes with success. (See *The Photographic News* of March 18th, 1864, p. 137.)

1864. A. CLAUDET, in September 1864, read a paper to the British Association, on "Photo-sculpture," the invention of M. WILLEME. Single profile photographs, in con-

A.D.

junction with a pantagraph, were used to work upon the clay, a number of profiles taken at the same moment being used in succession. (See *British Association Report of the meeting in 1864*, p. 10.)

- ARTHUR M'DOUGALL, in a paper read to the Chemical Society, and dated October 1864, "On a mode of measuring the relative sensitiveness of photographic papers," arrived at the result "that the sensitiveness of papers containing the same quantity of chlorine and bromine combined with sodium, potassium, ammonium, and barium is constant." (See *The Journal of the Chemical Society*, July 1865, p. 183.)
1864. WARREN DE LA RUE, in the latter part of 1864, presented a communication to the Royal Society, entitled "Comparison of Mr. De la Rue's and Padre Secchi's eclipse photographs." By means of an enlargement from a positive print of Padre Secchi's negative, as it was originally, the two photographs (allowing for difference of position) were found to "accord in their most minute details." (See *Proceedings of the Royal Society*, vol. XIII., No. 67, p. 442.)
1864. Dr. H. E. ROSCOE, on December 22, 1864, read the Bakerian lecture to the Royal Society, "On a method of meteorological registration of the chemical action of total daylight." This method is founded upon that described in *Phil. Trans.*, vol. 153, p. 139. "The reciprocals of the times during which the points on the strip have to be exposed in order to attain the normal tint, give the intensities of the acting light" in terms of the unit of photo-chemical intensity. (See *Phil. Trans.*, vol. 155, p. 605; also *Proceedings of the Royal Society*, vol. XIII., No. 71, p. 37.)
- WARREN DE LA RUE, BALFOUR STEWART, and BENJAMIN LOEWY, on January 26, 1865, contributed to the Royal Society a paper entitled "Researches on solar physics.—Series I. On the nature of solar spots." These researches were aided by pictures taken by the Kew heliograph, and by certain stereoscopic pictures. (See *Proceedings of the Royal Society*, vol. XIV., No. 71, p. 37.)

A.D.

1865. WARREN DE LA RUE, BALFOUR STEWART, and BENJAMIN LOEWY, on February 2nd, 1865, contributed to the Royal Society the second series of their researches on solar physics, "On the behaviour of sun spots with regard to increase and diminution." The Kew photographs, in connection with Carrington's observations, were used for these investigations. (See *Proceedings of the Royal Society*, vol. XIV., No. 72, p. 59.)
1865. W. WILLIS, on April 11, 1865, read a paper to the Photographic Society on "The aniline process of photographic printing." The sensitising liquid is an acid bichromate. After exposure to light under a positive photograph, the sensitised paper is placed in the vapour of aniline, the print is then washed. (See *The Photographic News* of April 21, 1865, p. 186; and of April 28, 1865, p. 196.)
1865. A. CLAUDET, in September 1865, read a paper to the British Association "On moving photographic figures." The instrument described in this paper is a combination of the stereoscope with the phenakistoscope of PLATEAU by means of photography. (See *British Association Report* of the meeting in 1865, p. 9.)
1865. Mr. CAREY LEA, in November 1865, published his new form of developer, "in which the decomposition products of gelatine by sulphuric acid take the place of acetic acid in controlling the development." Iron and acetate of soda are employed in conjunction with the above decomposition products. (See *The Photographic News* of November 24, 1865, p. 560.)
1866. Mr. Jabez HUGHES, on January 9, 1866, read a paper to the Photographic Society, entitled, "Further observations on the preparation of the iron developer, so as to produce dense negatives." To produce the result easily and successfully, a small quantity of solution of "sulphuro-gelatine," or of gelatine, is added to the ordinary iron developer. (See *The Photographic News* of January 19, 1866, p. 26.)
1866. Mr. NELSON K. CHERRILL, on January 9, 1866, read a paper to the Photographic Society of London on "The

A.D.

"new organic developer," in which he proposes to add glycocine to the ordinary iron developer. (See *The Photographic News* of January 19, 1866, p. 28.)

1866. Dr. ROSCOE and Mr. BAXENDALL, on February 22, 1866, read a "Note on the relative chemical intensities of direct sunlight and diffuse daylight at different altitudes of the sun." The results arrived at were:—1. That the effect of the atmosphere upon chemical rays is not accounted for by reflection by means of hollow vesicles of water. 2. That the ratio of the chemical intensity of direct to diffuse sunlight for a given altitude of the sun at different localities is not constant. 3. That this ratio of "chemical" intensity does not in the least correspond to the ratio of "visible" intensity as estimated by the eye. (See *Proceedings of the Royal Society*, vol. XV., p. 20.)

1866. Lieut.-General SABINE, on March 8, 1866, read to the Royal Society a "Note on a correspondence between Her Majesty's Government and the President and Council of the Royal Society regarding meteorological observations to be made by sea and land." Self-recording instruments (by photographic registration) are recommended; these comprise instruments for recording (1) the variations of the atmospheric pressure; (2) those of the dry and wet thermometers; (3) those of the force and direction of the wind; and (4) those of the atmospheric electricity. (See *Proceedings of the Royal Society*, vol. XV., p. 29.)

1866. Lieut.-General SABINE, on March 23, 1866, published a Postscript to his "Note," &c. of March 8, 1866, in which a COMMITTEE OF THE BOARD OF TRADE report favourably on the advantages of self-recording meteorological instruments. (See *Proceedings of the Royal Society*, vol. XV., p. 37.)

- Mr. CHARLES CHAMBERS, in a letter read to the Royal Society, on April 26, 1866, mentions that, in his Report to the Government, he has, amongst other requirements, requested a set of Kew Magnetographs for the Bombay Magnetic Observatory. (See *Proceedings of the Royal Society*, vol. XV., p. 111.)

A.D.

- Dr. ANGUS SMITH, F.R.S., made a communication to the Photographic Society of Scotland, which was read to the Society on May 8, 1866, entitled, "On a method of removing the last traces of hyposulphites from positive prints." He proposes peroxide of hydrogen for oxidising the hyposulphites. (See *The Photographic News* of May 18, 1866, p. 233.)
1866. Mr. ARTHUR TAYLOR, on June 1, 1866, published his shellac printing process. A solution of bleached shellac in phosphate of soda is used to prepare the paper, instead of albumen. Photographs prepared by this process are remarkable for their permanency. (See *The Photographic News* of June 1, 1866, p. 256.)
1866. Mr. JOHN SPILLER, F.C.S., on June 6, 1866, read a paper before the North London Photographic Society on "Photography in its chemical aspects." In this paper he points out the use of carbonate of ammonia in combination with hyposulphite of soda to extract the silver from the albumenised coating of an ordinary finished print. (See *The Photographic News* of June 15, 1866, p. 280.)
1866. Mr. F. W. HART, on June 14, 1866, read a paper before the South London Photographic Society "On the elimination of the double hyposulphites of soda and silver from photographic prints." He proposes to use the hypochlorite of soda to oxidise the hyposulphite with. (See *The Photographic News* of June 22, 1866, p. 290.)
1866. Lieut.-General EDWARD SABINE, on June 21, 1866, read a paper to the Royal Society on "Results of the magnetic observations at the Kew Observatory.—No. III." "The instruments employed for the determination of the lunar-diurnal variation furnish a continuous photographic registry of the changes in the direction of a magnet whose motion is limited to a horizontal plane, and in the amounts of the horizontal and vertical components of the force acting on a freely suspended magnet." (See *Phil. Trans.*, vol. 156, p. 441.)

A.D.

1866. Mr. WILLIAM ENGLAND, on June 29, 1866, published his modification of the method of preparing dry resinised plates recommended by the Abbé DESPRATZ. To ordinary bromo-iodised collodion, bromide of cadmium and ordinary resin are added. The sensitising bath requires rectification; ammonia or carbonate of soda and cyanide of potassium are used for this purpose. (See *The Photographic News* of June 29, 1866, p. 306.)

1866. Mr. A. CLAUDET, F.R.S., at the end of August 1866, read a paper to the British Association entitled "Optics of Photography.—On a new process for equalizing the definition of all the planes of a solid figure represented in a photographic picture." This is done by changing the focus during the time of sitting, by altering the distance between the two lenses in a double combination. (See *Phil. Mag.*, vol. 32, p. 212.)

PHOTOGRAPHY.

1860.

A.D. 1860, January 9.—N^o 58.

CZUGAJEWICZ, PIERRE.—“ Certain improvements in stereoscopes.”

“ This invention consists of a compound stereoscope, in which general or panoramic views of boulevards, streets, the banks of rivers, and coast lines, monuments, sea views, et cetera, may be displayed by means of the gradual unrolling of one or more endless slides or bands carrying pictures.”

The distinctive feature of this invention is “ the adaptation to stereoscopes of one or more symmetrical independent movable endless bands, on which are right and left-hand halves or corresponding parts of a stereoscopic panorama or succession of pictures. The following is the construction of the aforesaid improved stereoscope :—The top thereof consists, as usual, of two lenses or eye glasses, and the bottom thereof is mounted on a box containing rollers, on which are wound the before-mentioned endless slides or bands, on which are printed, pasted, or otherwise appropriately attached the views or pictures in panoramic succession, also a train of wheelwork for setting the aforesaid bands in motion. The aforesaid bands and corresponding parts of the pictures thereon are brought under their respective eye glasses upon a flat stage or platform over which the bands pass, so that when set in motion a panoramic stereoscopic view or picture is thus obtained.” Two methods of imparting motion to the bands are described and shown.

The Final Specification sets forth the following method of “ inclining the upper part of the stereoscope as may be desired :”—The case is hinged to a bottom frame or base plate, and to the opposite side, external to the spectator, a “ flexible piece” is

PH.

A

affixed; a winch handle, working a rack and pinion movement, enables the upper part of the stereoscope to be brought to the desired inclination.

[Printed, &c. Drawing.]

A.D. 1860, January 20.—N° 149.

JOUBERT DE LA FERTÉ, FERDINAND JEAN.—(*Partly a communication from Henry Garnier.*)—"Improvements in reproducing photographic and other pictures, engravings, prints, devices, and designs on the surfaces of glass, ceramic and other substances requiring to be fired, to fix the same thereon."

This invention is carried out by coating the above-mentioned surfaces "with a sticky composition acted on by light, then printing on the surface in the manner of photographic printing, thus destroying or changing the sticky composition where the light acts upon it and consequently causing a suitable coloring matter to adhere to such portions of the surface as remain sticky."

The glass is first coated with a solution which, when dry, furnishes the above-mentioned "sticky composition," it is then heated, so as to dry the solution perfectly, and receives the photographic negative image by "printing" in the usual way. The whole surface of the glass, on the image side, is then rubbed over with suitable vitreous colour by means of a camel-hair brush, and the film on the glass is well soaked with an acid solution of spirits of wine; the glass is then dried. When completely dry, the glass is washed in a weak alkaline solution, and when it is again dried, it is "ready to be placed into the muffle and to be fired."

The photographic image can also be produced in a similar manner on well glazed china, or other ceramic substance, and, by successive firings, or even in one firing, polychromes may be produced.

The above-mentioned solution contains bichromate of ammonium, honey, albumen, and distilled water.

[Printed, &c. No Drawings.]

A.D. 1860, February 23.—N° 493.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Sidlitz.*)—"An improved method of producing docu-
mentable for bank notes and other instruments of value,
prevent forgery thereof."

This invention "consists in the employment of paper having
 "an irregular surface as ornamental pressed paper, or of paper
 "manufactured with a movable or variable water-mark, and upon
 "these marked portions of the paper, some part of the design, as
 "the vignettes, words, or denominations, is to be produced by
 "the photographic process, either directly or indirectly."

To make "hand-made paper with a variable or movable water-
 "mark," "before the pump is spread upon the web or dipper,
 "a metal water-mark is dropped upon the web or dipper at
 "various points at random."

The words, letters, or figures to compose the bank note, may be
 printed or engraved, by the ordinary process, upon the photo-
 graphic impression of some changing object.

When the photographic process is to be employed alone, a photo-
 graphic negative is taken of a screen, on which the letters, &c.,
 composing the note are printed or painted "in connection with
 "the subject selected for the vignette."

"The photographic devices may appear either on the surface of
 "the paper or below the surface and within the body of the paper,
 "and either of them may be produced by means already known.
 "Upon the surface they may also be made by printing from
 "stones or plates prepared by the photographic process."

The inventor relies upon the impossibility of taking a photo-
 graph of these bank notes, without photographing the water-mark
 also, as the preventive of forgery.

[Printed, 4d. No Drawings.]

A.D. 1860, February 27.—N° 537.

DESVIGNES, PETER HUBERT.—"Improvements in apparatuses
 "for exhibiting photographic, stereoscopic, and other pictures,
 "models, figures, and designs."

The object of this invention "is to show in one apparatus a
 "series of stereoscopic or other representations or models taken
 "in different views, as if the same or the things represented were
 "in motion."

The apparatus "are cylindrical or polygonal, and are caused to
 "rotate either vertically or horizontally."

To exhibit stereoscopic views, a certain number of them are
 placed within a cylinder whose periphery "has formed across it as
 "many slots as there are views." The glasses for viewing the

pictures are "held stationary outside of the periphery of the "cylinder." "The views may represent, for instance, a steam "engine, and each view must be taken when the engine is at "different parts of its stroke. The views being placed in the "said cylinder, and the cylinder being caused to rotate, will show "to the eye the steam engine as if in actual movement in all its "parts."

To exhibit models and drawings, they are arranged "round a "cylinder placed and caused to rotate horizontally; vertical slots "are made in the periphery to see through." In some cases, a sort of fixed camera, in combination with a cylinder and disc or discs is used.

Endless bands and other combinations of moving slots and pictures are described and shown in detail; the theory of these apparatus is amply set forth, and methods of varying the optical effects are fully stated.

Various methods of shading extraneous objects from the observer, and of illuminating the views or figures under examination, are described. Electric sparks, elicited at the proper time, may be used to make every change of figure, "visible at its proper time "and place."

[Printed, 1s. Drawing.]

A.D. 1860, February 28.—N° 543.

ASSER, EDOUARD ISAAC.—"A process of photographic proofs "with printing or autographic ink, for the purpose of either "using them as such, or placing them back on lithographic stones "or on metal."

"I take paper prepared without size, and steep it in a solution "of bichromate of potash; I then dry it in the dark, and by a "negative on glass or other transparent negative, placed in an "ordinary frame and exposed to the light with the paper, prepared as above described, I bring the object upon the paper. "The impression thus obtained, I dissolve in water the bichromate of potash upon which the light has not struck. After "perfectly drying the paper bearing the impression, I wet it on "the back, and place it upon a paper not sized, but damped and "stretched upon a glass or other flat and hard object, the impression being uppermost; I then pass over it a roller charged "with printing ink until the impression shews well in black. I

“ then steep the impression in water containing a little nitric or other acid, which will dissolve the bichromate of potash still upon the positive, and remove it from the paper. After drying the positive is ready.” “ By passing a roller charged with autographic ink over the impression obtained by bichromate of potash, and treated as above described, I obtain a stereotype suitable for transfer by pressure on to a lithographic stone, from which I draw, by the process known as lithography, autographic prints; this transfer may be made in like manner upon any of the matters which may be used on the same principle for every description of autographic printing, as, for example, zinc or copper, either for reproduction after what is usually termed zincography, or by the aid of galvanoplastic, hollow, or in relief. In some cases the inking may be effected with a rubber instead of a roller, as above described.”

[Printed, 4d. No Drawings.]

A.D. 1860, February 29.—N^o 559.

SWAN, HENRY.—“ Improvements in stereoscopes, stereoscopic pictures, and cameras for taking the same.”

According to this invention stereoscopes are constructed with lenses of different magnifying powers, and are used “ in conjunction with pictures in which the two views forming the stereoscopic combination are of different sizes, corresponding with the different powers of the prisms or lenses opposite the two eyes;” these pictures are connected together “ by attaching them both in suitable positions to the same mounting.” In this manner a stereoscopic effect is obtained by the use of one large picture only, the said effect being “ combined with minuteness of detail, such as a large picture alone can give;” the instrument is arranged in a more convenient form than that of the instrument heretofore employed for viewing large pictures.

“ Instruments may be constructed having one prism or lens only, the large picture being then seen without the aid of a prism or lens. Magnifying mirrors may be employed in place of prisms and lenses.”

“ My improvement in cameras has for its object the so arranging the same that a large and a small picture forming a stereoscopic combination, as above explained, may be taken at the same time and on the same plate or surface. For this purpose the camera is fitted with two lenses, the focal length of the lens for taking

“ the larger picture being greater than that of the lens for taking
 “ the smaller picture; these lenses are so placed as to focus on
 “ the same plane or flat surface, and are furnished with separate
 “ adjusting screws or means of adjustment.”

[Printed, 4d. No Drawings.]

A.D. 1860, March 2.—N° 581.

ALBITES, PIERRE MODESTE TITUS OCTAVE COEN.—(*Provisional protection only.*)—“ Improvements in photographic apparatus.”

“ The object of this apparatus is to simplify the work of the
 “ photographic manipulator, for which purpose the ordinary dark
 “ chamber and travelling tent are dispensed with. The whole of
 “ the process being done in the dark chamber of the apparatus,
 “ and as it is done mechanically, the work is performed more
 “ regularly, and it is more accessible to every one.”

The drawings show the sensitizing bath, a movable slide to hold the sensitive plate and put the ground glass in position, two grooves “ fixed to the drawer of the apparatus ” to move the said slide backwards and forwards, the positive developing bath “ placed in the interior of the apparatus,” a cord and pulleys to manipulate the slide, and the negative developing bath.

[Printed, 6d. Drawing.]

A.D. 1860, March 21.—N° 735.

NEWTON, WILLIAM EDWARD.—(*A communication from Joseph Chase Rutherford and Benjamin Hinman Steele.*)—(*Provisional protection only.*)—“ An improved preparation or solution for “ toning photographic pictures.”

“ The improved preparation or solution for toning photographic
 “ pictures which forms the subject of the present invention is
 “ composed of corrosive sublimate, tartaric acid, sal soda, hydro-
 “ chloric acid, and aqua distillata. This solution after well
 “ mixing is left standing for forty-eight hours, and after filtering
 “ is ready for use. The picture when taken from the printing
 “ board is passed through the toning bath, then immediately
 “ immersed in a clean water bath to give it a thorough rinsing.
 “ As a rule this will be sufficient to tone a picture, but when it is
 “ printed down very dark it may be necessary to go through the
 “ manipulation the second time. Care should be taken to
 the print well washed before it is put into the fixing bat

"The advantages of the above toning solution are 1st., that
 "it greatly cheapens the process of toning pictures; 2nd., that
 "the toning of a print with this solution is an instantaneous
 "process thereby saving a great amount of valuable time; 3rd.,
 "that it gives a sharpness and distinctness to the picture; 4th.,
 "that it can be worked in a clear light without injury to the
 "toning solution or the print; and 5th., that the colors are
 "permanent."

[Printed, 4d. No Drawings.]

A.D. 1860, March 28.—N° 801.

DAGRON, AENÉ PRUDENT PATRICE. — "An improved micro-
 "scope to be used for exhibiting photographic views and
 "productions."

The eye glass is fixed in a socket placed in a slide holder, the
 socket being surrounded by a ring, by which the eye glass can be
 adjusted to the proper focus. A stud in the said socket, working
 into an inclined notch in the slide holder, regulates and adjusts
 the focus. The slide holder is movable, and consists of two
 tubes, which support the glass in which the microscopic image is
 to be placed.

A microscope in solid glass is "of a cylindrical form, rounded
 "at both ends, or it may be divided into two parts, one part
 "serving for the eye glass, and the other for the object glass;
 "the image to be viewed being placed between the two glasses,
 "may be fixed thereto by means of any suitable adhesive sub-
 "stance or material. In adapting the microscope to a ring to be
 "worn on the finger the stone or centre ornament of the ring is
 "made to open on a hinge, and the microscope is fixed inside the
 "lid, or cover of the hinged part." Two modifications of the
 miniature microscope are thus obtained, "in which the image may
 "be either permanent or variable, one being mounted in a me-
 "tallic setting the other formed of solid glass." Either of these
 instruments, furnished with a permanent object, may be set in
 jewellery, &c., "so as to obtain artistic or useful observations with
 "or without stereoscopic effect."

In a double-image microscope, the eye glasses are fitted at each
 end of a cylinder, and the glasses carrying the images are placed
 at the focal point of their respective lenses within the cylinder;

the image only occupies the centre of the glass to which it is fastened.

[Printed, 8d. Drawing.]

A.D. 1860, March 30.—N° 823.

BEAU, PAUL ADOLPHE AUGUSTE.—(*Provisional protection only.*)—"A neomonoscope or apparatus for viewing photographic
" and other like pictures."

"My invention consists in constructing a neomonoscope or
" apparatus with one glass or several glasses superposed for the
" purpose of obtaining a similar effect to that derived from view-
" ing pictures in or through a stereoscope. The monoscope is a
" pyramidal or conical-shaped case, with a part of one of the
" sides removed to admit light, fitted with a flap or not as desired.
" The glass is fitted in the top of the apparatus, and in some
" cases flaps for forming, when raised, a dark chamber between
" the eye and the glass, are added. The bottom of the apparatus
" is made to slide to admit of its being entirely removed, in order
" to view transparent objects or others apart from the apparatus
" itself. The sides of the apparatus are either made rigid or to
" fold. I sometimes add a pocket which forms part of the sides
" or bottom of the apparatus to contain photographic or other
" representations."

[Printed, 4d. No Drawings.]

A.D. 1860, April 9.—N° 893.

EIDLITZ, LEOPOLD. — (*Provisional protection only.*)—"Im-
" provements in producing printing and other irregular surfaces
" by the aid of photography."

A hot solution, containing gelatine and bichromate of potash,
is poured upon a sheet of glass, so that when dry it will form a
thin film. The edges of the dried plate are coated with varnish,
and the plate put into the printing frame under a photographic
negative. When the surface of the plate is of a brown colour, it
is "immersed for about 5 minutes in a bath of cold water.
" The effect of this will be that where the lights were strongest
" the gelatine will have been rendered incapable of being ex-
" panded by the action of the water, while where the shades were
" deepest the amount of that expansion will be the greatest, and
" this difference will be on all parts of the plate just as the plate

“ at each part has been exposed to more or less light.” The plate is now left in an aqueous solution of sulphate of copper for some time, washed, dried on the surface, and metallized ; this is effected by pouring upon it a solution of chloride of gold, and exposing the apparently dry surface to the fumes of phosphorus dissolved in sulphuric ether ; the layer of gold thus obtained enables the plate to receive an electro-deposit of copper or other metal upon it. “ When removed from the trough, the glass will readily “ separate from the gelatine, and that may be washed off, using “ warm water and a soft brush.”

“ If the plate is to be used for letter-press printing, a positive photograph should be employed in the printing frame, or a cast “ in wax may be taken from the gelatine plate, and the metal be “ deposited upon that.” An engraving or other design may be employed in the printing frame instead of the photograph.

[Printed, 4d. No Drawings.]

A.D. 1860, May 22.—N^o 1260.

SHAW, WILLIAM THOMAS.—“ Improvements in thaumatropes “ or phenakistoscopes.”

This invention “ consists in the application of the principle of “ the stereoscope ” to instruments “ which depend for their “ results on ‘ persistence of vision.’ ”

“ The thaumatrope and the phenakistoscope, as is well known, “ give to objects shown by them an appearance of motion ; by “ my improvements I cause these objects to appear also in solid “ relief, as when seen in the ordinary stereoscope. I take from a “ suitable object a number of photographic pictures, the pictures “ being taken in pairs having a stereoscopic relation the one to “ the other as is well understood. Between the taking of each “ pair of pictures the object is caused to perform a portion of the “ movement which it is desired to represent, the first pair of “ pictures being taken at the commencing point of the movement, “ and each successive pair showing the same somewhat further pro- “ gressed than the previous pair, until the last pair shows the “ object at a point just before it regains its first position. “ Having obtained these pictures, I view them by means of a “ stereoscope, and by mechanism I cause the pairs of pictures to “ be changed rapidly, each pair being submitted to the eyes in “ succession for a moment of time. When thus seen an appear- “ ance is obtained as of a solid body in motion.”

An apparatus "on the principle of the reflecting stereoscope" has (besides the synchronously revolving "picture" discs) revolving eye discs, which limit the time during which the pictures can be seen. In a refracting instrument, a revolving octagonal drum carries the pictures, and a revolving slotted drum limits the time of sight of the pictures as well as the sight of each eye to the picture which is intended for it.

[Printed, 1s. 4d. Drawings.]

A.D. 1860, May 25.—N^o 1299.

WALLIS, GEORGE.—"New or improved methods of preparing drawings, writings, designs, prints, or impressions of engravings and photographs, for the purpose of impressing or engraving the same in or upon metallic surfaces, and thereby producing printing or embossing surfaces or ornamental metallic surfaces for such purposes as the same are or may be applicable to; also new or improved machinery to be employed in the said impressing or engraving."

In treating photographs according to the first part of the invention, two methods are used; by one, all the parts it is wished to impress in metal are drawn on with a certain drawing material; by the other method, the photographic image itself is caused to stand out in relief. The drawing material by which the relief is obtained in the first method "is composed of finely pulverized or levigated hard or granular substances in combination with soft mineral substances and glutinous or adhesive materials, and a soluble chromic salt for fixing the same." In the second method, paper or other suitable material is coated with a compound containing bichromate of potash, gum arabic, or gelatine, and a granular powder; or a metal plate may be coated with a mixture of these with water. The coated surface is then dried, exposed to light, and washed; the parts to be impressed then stand out in relief.

The second part of the invention "consists essentially of a pair of plain rolls mounted upon horizontal axes." Between the rolls a horizontal table with a hard metal bed is made to slide. To impress the photograph upon a soft metal plate, it is placed on the said hard metal bed with the prepared surface uppermost; upon this the soft metal plate is placed, and the table *is passed between the rolls*. The impression thus produced may

either be used as a printing surface or as an ornamental metallic surface.

[Printed, 1s. Drawing.]

A.D. 1860, June 14.—N° 1454.

HENRY, MICHAEL.—(*A communication from Louis Henry Obert, Jean Baptiste Vasseur, and Auguste Houbigant.*)—"Improvements
" in treating vegetable substances so as to obtain paper pulp and
" other useful products therefrom."

The products obtained by treatment of the said substances according to this invention, consist of "materials for textile and
" fibrous manufacturing purposes, alcohol, essential, and other oils,
" fecula and gums, colouring, saponaceous, and tanning matters,
" &c." By means of the "successive and simultaneous" processes and mechanical operations comprised in this invention, the Specification sets forth that the parties communicating "have obtained from all, or nearly all plants the materials of photographic
" paper met with in cotton, and thus collodion and photographic
" paper can be manufactured from textile and fibrous plants
" other than cotton."

The said substances are first crushed "by means of an arrangement of rollers one pair over another, in such manner
" that the substances may pass down and between them, together
" with a continuous stream of liquid, either clear or charged with
" matters, whereby they are caused to travel along and away
" more readily;" the fibrous substances, materials for paper pulp, and the liquid products are then separately collected. The disintegration and decolorization are accomplished "more especially
" by the action of steam," in a "closed receiver or boiler, in
" which also" the vegetable substances "are distilled by steam,
" when desired, and the liquors used in the operations performed
" in the boiler are" "run into" a "soaking vessel to be used for
" soaking or steeping the substances, instead of alkaline
" salts, and for being again returned into the boiler or closed
" receiver for fresh operations therein, until sufficiently concentrated."

The machinery for carrying out this invention is shown as it would be arranged in a factory, and the use of each apparatus in the successive stages of operations is distinctly described.

[Printed, 1s. Drawing.]

A.D. 1860, June 21.—N° 1503.

SMITH, JOHN.—“Improvements in the manufacture of composition jewellery and ornaments, and in cases for jewellery, “photographs, and for other similar purposes.”

This invention consists of certain improvements upon that set forth in No. 2891 (A.D. 1859).

The said composition consists of shellac dissolved by heat and mixed with ebony dust; the whole is then treated with the colouring matter. If a very intense black is wanted, and at the same time hardness, a mixture of black asphaltum and ivory black is used; if hardness be not desirable, charcoal or lamp-black takes the place of ivory black. A mixture of brown asphaltum and rouge gives chocolate. To produce light colours, the dust of boxwood is employed “as a colouring matter in itself;” if a still lighter tint be required, barytes may be added. Veined composition may be produced by twisting or rolling together masses of different coloured compositions.

The components of the composition having been well mixed whilst the lac is in a plastic state and under heat, the composition is stamped between suitable dies.

The quality of density may be imparted to the composition by barytes or oxide of manganese. The admixture of vegetable fibre will give great tenacity.

The dies and presses employed “are of the same kind precisely as those now in use by the manufacturers of horn “buttons.”

[Printed, 4d. No Drawings.]

A.D. 1860, July 24.—N° 1788.

MACAIRE, LOUIS CYRUS.—(*Provisional protection only.*)—
“A substitute for nitrate of silver, particularly applicable to “photographic purposes.”

“In forming my substitute for nitrate of silver, I propose “using, in combination with the pure silver and nitric acid now “employed, certain quantities of azotate of potash and a small “portion of a baser metal, such as copper, tin, zinc, or bismuth. “These materials mixed in the proportions below mentioned I “have found to answer well: pure silver 1’, nitrid acie 1·50, “azotate of potash 1·50, zinc or other metal 1’, this combination “producing 3·1” [4·1 ?].

"The substitute thus produced is cheaper and more efficient for photographic purposes than the ordinary nitrate of silver now in use."

[Printed, 4d. No Drawings.]

A.D. 1860, July 31.—N° 1860.

WILLCOCK, JOSEPH.—(*A communication from Pierre M. T. O. Coen Albites.*)—"Improvements in photographic apparatus."

According to this invention "the ordinary dark chamber and travelling tent are dispensed with." The whole of the process is gone through "in the dark chamber of the apparatus, and as it is done mechanically, the work is performed more regularly, and it is more accessible to every one."

A movable slide drops into the sensitizing bath; the said slide serves to hold the sensitive plate and to put the ground glass in position; it can be moved backwards and forwards by means of "two grooves fixed to the drawer of the apparatus." "The positive bath" is made of coloured glass, "it is placed in the interior of the apparatus, and receives the glass after the impression by the light, and develops it instantaneously." A cord passing over two pulleys, is employed "to move the slide carrying the prepared glass, and to dip it into the sensitive bath." An india-rubber framework serves "to prevent the light from penetrating into the apparatus, and to detach the silver hook that holds the ground glass, and slide it into the bath." The negative and positive developing bath "permits you to judge the progress of the development of the image." "When required, a hole may be made in top partition of the dark chamber of the apparatus, and in the objective or in the last only because a ray of light penetrating by this hole upon a mirror that should be placed in the objective, and which reflects this ray upon the ground glass without destroying the ray upon the first glass upon which is the image, thus rendering the production more instantaneous."

[Printed, 8d. Drawings.]

A.D. 1860, August 8.—N° 1922.

FLOUNDERS, CHARLES FONTAYNE.—"An improvement or improvements in duplicating photographic impressions, and also for certain machinery for the same."

This invention consists of a machine for photographic printing. The sensitive material may be exposed to light "until the impression is fully made," or it may be exposed for a shorter period and then developed by chemical means.

The sensitive paper or other material "is confined in a dark space, and, by mechanical means, is made to traverse an aperture through which ordinary or concentrated light, or the image of the negative is received. The light is admitted and shut off by a perforated slide, which passes over a similar or other suitable perforation in a fixed part." The sensitive paper may be applied "to a cylinder or polygonal prism within the dark space, and the same is then made both to revolve and to move axially" until the paper is entirely covered with photographic impressions. "Springs, slides, levers, and various mechanical devices are employed, either separately or mechanically combined, to impart the proper motions to the several parts, so that the sensitive material shall be caused to traverse during the interval while the light is excluded, and to present a fresh surface firmly held in its proper position during the period that the light is admitted."

[Printed, 8d. Drawing.]

A.D. 1860, August 22.—N° 2022. (* *)

GRUMEL, FRANÇOIS REMY.—"Improvements in the albums of collection of photographic and lithographic proofs, engravings, and other drawings."

Each leaf of the album is composed of three layers, by preference of thin cardboard; the outside ones "have a portion of their central parts cut out in form a little less than the cards" to be inserted, and the middle one "has also a portion cut out in the centre, but larger than the other two, and in addition it has a portion cut away from the bottom." The edges of the layers are glued or cemented all round, "save where the portion of the middle layer at its bottom edge is cut away;" care must be taken that the central spaces coincide. The card is pushed through the bottom opening to the central spaces, and if two cards are inserted, they must of course be placed back to back. "A small slip of cotton or skin attached to one side forms a hinge or substance to bind the leaves so as to form a book." Each leaf may be made to "contain several spaces, each holding cards."

[Printed, 6d. Drawing.]

A.D. 1860, October 13.—N^o 2496.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Charles C. Harrison.*)—"Improvements in lenses."

This invention consists of a compound lens, which is "designed primarily for use in cameras for taking photographs, daguerreotypes, and other pictures, but is also adapted to microscopes, telescopes, and similar instruments."

The lens is formed by "an achromatic combination of two lenses which are meniscuses, the outer surfaces of which are segments of similar spheres, and which lenses are so placed in the combination that their axes shall coincide, and their outer surfaces form portions of a sphere of like diameter."

The achromatic combination, of which each meniscus consists, is a meniscus of flint glass, to the outer surface of which is cemented a concavo-convex lens of crown glass; the achromatic combinations are so mounted for use that their axes coincide, "and their surfaces if produced would form a complete globe;" the convex surface of the crown glass lens forms a portion of the said "complete globe." The centre of the sphere is the focal point of each compound lens, and at this point a diaphragm is fixed.

Any object being properly placed, will be exactly reproduced, on the opposite side of the combination, of a size proportional to the respective distances of the object and of the image from the lens; for, "whatever be the angle at which the rays are refracted to the centre" "of the sphere, they will so pass out through the opposite lens as to restore the angle of incidence of the entering rays, and will thus unite to produce the image upon a plane parallel with that from which the incident rays proceeded."

A flat field of 90° range is obtained by this lens.

The mounted combination "forms the object glass of the camera."

[Printed, 8d. Drawings.]

A.D. 1860, October 29.—N^o 2639.

KNIGHT, JOHN ADAMS.—(*A communication from Charles Felix Korn.*)—(*Provisional protection only.*)—"A new system of photographic or daguerrean apparatus or objective to be called 'Korn's polygraph.'"

"This invention relates to photographic or daguerre apparatus or objective which may be used for both near views (such as

“ portraits, &c.) and for distant views (such as landscapes and reproductions) by means of an easy change in the relative position, or removal of the different parts of the apparatus or objective.

“ The apparatus or objective used for taking near views (or portrays) in the ordinary way having two lenses, the outer one of which has a wide broad inlet, and for distant views (such as landscapes and reproductions) having only one lens with a smaller inlet of light limited by diaphragms of various sizes. I do not change the system of objectives used in these two different cases.

“ But the invention I have made consists in so mounting the said outer lens on suitable tubes fitted with diaphragms and screw threads that {supposing said apparatus or objective to be fixed on the camera obscura in the usual way for taking near views (such as portrays)} the outer lens with its tubing and diaphragms or place for the same, may be unscrewed from the tubing appertaining to the inner lens, and the inner lens with its tubing and appurtenances being unscrewed from the camera obscura, the outer lens with its tubing, diaphragms, and appurtenances may be inverted or turned round bodily and screwed on the camera obscura, thus forming or procuring at once a perfect apparatus or objective for taking distant or extensive views, such as buildings, landscapes, and reproductions of large objects or paintings and vice versa.”

[Printed, 4d. No Drawings.]

A.D. 1860, November 13.—N^o 2772. (* *)

WILLIAMS, VALENTINE VAUGHAN.—(*Provisional protection only.*)—“ An improved method of constructing stands for cameras, telescopes, surveying and other instruments, parts of which are applicable to other purposes.”

This invention “ consists in constructing a supporting tripod stand, so designed that it is capable of being closed up as a walking stick.” “ A supporting tripod is formed out of a metal tube divided lengthways into three equal parts which are united by suitable joints at their upper ends to a small tubular socket through which socket passes a metal tube, this tube is continued at its lower end by a small metal rod so as to form a central or fourth leg.” At the end of the central leg is a tapering screw, and the extremities of the other legs consist of points

and shoulders. A hollow metal slide works in the central tube or leg, the said slide having a rack. The skeleton table top is fitted to the upper end of the slide.

The mode of action of the instrument is as follows :—

When the case, &c. is removed the tripod legs are opened, and the middle leg is shifted up and screwed into the ground by hand, being made fast by a thumb screw; the top is then opened out and secured by an elastic band. "The camera can then be raised " by the metal slide which gives the horizontal movement while " the vertical movement is obtained by means of a joint situated " between the table top and the socket."

A slight modification is made to adapt the top to telescopes of various diameters and descriptions.

[Printed, 4d. No Drawings.]

A.D. 1860, November 17.—N° 2832.

MACFARLANE, HUGH.—(*Provisional protection only.*)—"Improvements in cameras such as are used by photographers."

" This invention relates to improvements in cameras such as are " used by photographers, such improvements whilst of a simple " and inexpensive character permitting of a slight inclination " being given to the picture plate, which is in many cases of great " benefit as is well understood by photographers. In a camera " embodying the improvements the back portion of the box, " instead of being as ordinarily rigidly fixed to the inner shell " which is drawn out with the back, has such inner shell entered " loosely a short distance and attached by a single screw or pin at " the top, and another at the bottom, so that the back can be " inclined slightly in either direction about a vertical axis. The " back of the box can be fixed at any inclination by means of a " screw working in connection with the guide in the back supporting flap. A slight inclination about a horizontal axis is " obtained by means of a pair of levers inside the box, against " which levers the frame for holding the picture plate bears, these " levers being inclined by means of pins projecting through " slots to the outside, and being fixed by means of external screw nuts."

[Printed, 4d. No Drawings.]

A.D. 1860, November 24.—N° 2881.

DALGLISH, ANDREW ADIE.—"Improvements in engraving or " for producing printed surfaces."

PH.

B

This invention relates to the application of photography, in conjunction with certain other processes, to the above-named purposes.

In producing printed surfaces upon the "cylindrical dies used in preparing rollers for calico printers," a photograph of the design is transferred to the circumference of the die, which is coated with etching varnish for that purpose. The design is "then etched or engraved through the film," the coating of varnish entirely removed, and a fresh coating put upon the die up to the etched outline. Lastly, the die is immersed in acid "which eats away the metal to the required depth," and, when necessary, is finished by an engraver. When there are several colours in the design, an impression is taken from an original die (to which the photograph has been transferred, and which has been etched), "upon as many dies as there are colours to be printed, the surfaces of these several dies having been previously varnished;" each die is then prepared, as set forth above.

In another method a "mill" is made from the above-mentioned original die, "which is caused slightly to impress the surfaces of" the several dies required for the separate colours," and those outlines are erased which are not required.

In a third method a photograph is taken for each colour.

In applying this invention to ordinary printing from metal plates, the metal is re-varnished after the outlines are engraved in order to engrave the shading.

An apparatus for transferring photographic films to cylindrical surfaces is described and shown, which consists of a plane table on which the photograph is fixed, and over which the die or roller is made to traverse uniformly by means of a rack and pinion movement.

[Printed, *sd.* Drawing.]

A.D. 1860, November 27.—N^o 2913.

BEATTY, FRANCIS STEWART, and ALEXANDER, THOMAS.—

"Improvements in the production of photographic proofs and their application to printing purposes."

This process is called "heliographic printing."

Lithographic transfer paper is treated with a solution containing bichromate of potash and gelatine. The photographic image *having been impressed*, the surface is carefully covered with

printer's ink and allowed to dry; it is then placed in hot water, which swells the composition, and dissolves the bichromate of potash and gelatine which has not been exposed to the light; the photographic image is thus fixed and retains the printing ink on its surface. The greasy ink on the unlighted portions of the proof is removed by rubbing with a sponge in warm water. The printer's ink left upon the proof, and forming the design, may be transferred to zinc or stone for printing.

According to a modification of the above process, a polished surface is coated with the transfer medium and sensitive coating, exposed to light, and washed. A plaster cast of the resulting proof is hardened by immersion in "liquid silex," and employed as a printing surface.

Printing surfaces may also be obtained by floating the sensitive coating alone upon the surface of a metal plate, exposing it to light, covering the whole plate with an acid-resisting composition (printer's varnish, asphalt and lampblack), washing the said composition from the illuminated portions of the proof, and acting upon those parts with acid.

When a sensitive solution is applied to a lithographic stone, the said stone is hardened by means of "liquid silex," or "silicate zopissa."

The transfer and sensitive compositions may be applied to other surfaces besides those of paper with the admixture of pulverized mineral substances. The adaptation of grained plates to the invention, and printing in colours, are set forth in detail. Other details and modifications are described.

[Printed, 8d. Drawing.]

A.D. 1860, November 28.—N° 2923.

GILLET, HENRY.—(*Provisional protection only.*)—"Improvements in the ornamentation of the edges of the leaves of photographic albums especially intended for 'cartes de visite.'"

"The object of this invention is to ornament or illuminate the edges of the leaves of albums generally, but more especially those containing photographic pictures known as 'cartes de visite.'"

"I propose ornamenting such edges with various designs, such as flowers, designs in the style of Arabesque, Italian, Grecian, Alhambran, or any other style suitable for such purpose."

“ either plain or in colours, or gold, or gold intermixed with colours, such ornament being either printed, stencilled, painted by hand, transferred, or placed upon the edges by any convenient process.”

[Printed, 4d. No Drawings.]

A.D. 1860, December 10.—N° 3024.

CLARK, WILLIAM.—(*A communication from Charles Gustave Anthoni.*)—“ Improvements in photographic apparatus.”

This invention comprises a “ mechanical laboratory ” connected to the dark chamber of the camera used in photographic operations; by means of this invention damp collodion can be operated upon in the open air. The nitrate of silver or sensitizing bath “ is at the opposite side to the object,” and the sulphate of iron or developing bath “ is placed at the under part of the dark “ chamber.” The collodionized glass, after having been fixed on certain hooks, is treated with the nitrate of silver solution by inclining the bath, the bath being hinged to the dark chamber for that purpose. The sensitized collodion film is then submitted to the action of light. In order to dip the impressed plate into the sulphate of iron bath, the apparatus is inclined, the hooks lowered and again lifted, and the plate allowed to descend so as to lie in the said bath, being guided in its descent by lateral guides; a small door in front of the apparatus is then opened, the trough containing the sulphate of iron solution removed, and the plate taken out therefrom by means of a hook. The sheet of glass is finally washed with water, or placed in a grooved box previously filled with water. The motion of the above-mentioned hooks, and a certain rocking motion imparted to the baths, is accomplished from the outside of the dark chamber, by means of spiral springs and ratchets connected with the axes of the hooks, and by means of slotted links.

An arrangement for taking stereoscopic views is described, in which certain partitions are added to the collapsible chamber.

[Printed, 8d. Drawing.]

A.D. 1860, December 13.—N° 3073.

MELLO, JOHN ARNOLD.—(*Provisional protection only.*)—“ Improvements in the manufacture of stereoscopic slides.”

“ This invention has for its object improvements in the manufacture of stereoscopic slides. In order to give a more natural

" appearance to the sky of opaque stereoscopic slides which usually appear white, or nearly so, I cut away such portions of the pictures as represent sky, going very carefully up to the outline of the objects represented in the pictures. Then in viewing stereoscopic slides thus manufactured I employ a stereoscope with an open or transparent stage, and I allow light to pass through this stage, as is usual in viewing transparent stereoscopic slides; this light I color by causing it to pass through a colored medium, and in this manner I obtain the appearance of a transparent sky, either blue or of other tint or tints, which may be desired. By the same method I give a more natural appearance when water is represented, or when objects are represented which produce or reflect a bright light."

: [Printed, &c. No Drawings.]

A.D, 1860, December 24. . No 3153.

GIBBONS, WILLIAM JOHN.—(*Complete Specification, but no Letters Patent.*)—"Improvements in stereoscopes and their cases."

1st. An instrument which combines the stereoscope with the case that contains the slides.—A box having a lid, which may be secured by a lock, contains the slides, and has such fittings as are necessary to view them stereoscopically. A "lens plate" is hinged to the inside of the front edge of the lid, and a "bracket piece" or stay (serving "also as a separator for the two pictures to be viewed") is hinged to the lid so as to unfold itself at right angles to the lens plate. A sliding carrier, furnished with spring holders, receives the pictures; it "is adjustable, sliding in grooves at each end of the case; it can be advanced or withdrawn at will, and thus this form of stereoscope accommodates itself to different visions, allowing a long or short focus, as may be desired." In closing the instrument, the bracket is folded down into the lid of the case, the lens plate is folded upon the bracket, the carrier is advanced to the back of the box, and the pictures are laid in the bottom of the box.

2nd. An improved "folding stereoscope" without the case.—It consists simply of a back plate "upon which is hinged a bracket" "and lens plate," "the carrier" "for the slides being placed at the bottom edge of the back plate. On packing away this instrument" it folds in manner precisely similar to that set forth in the 1st improvement, the bracket "folding first upon the back plate, and then the lens plate upon the bracket."

The sliding carrier described in the 1st improvement may be used in the "folding stereoscope."

[Printed, 6d. Drawing.]

A.D. 1860, December 28.—N° 3181.

PALLU, CLAUDE.—(*Provisional protection only.*)—"Improvements in the apparatuses and process for producing photographic pictures without working in dark rooms."

"The camera obscura which I make use of is composed of two boxes exactly adjusted in one another, so that the smaller one can slide in the larger, the latter carrying the object glass, and the first one the ocular, so that when the prepared plate is placed vertically in the sliding box it can be easily brought to the very point or focus of the object glass. The plate intended to receive the picture, whether glass, metal, or paper, is prepared as usual with the chymical agents used by photographers, but the last preparation for producing the action of the light is made in a closed gutta percha box or vessel impervious to light, of a size corresponding to the one of the camera obscura; diluted nitrate of silver is placed in that vessel, which is closed on the top by a narrow sliding board; the plate is placed in a small case closed at its lower part by a little sliding plate, carrying the plate prepared for dipping in the solution contained in the gutta percha vessel, over which the case is placed, instead of its sliding lid, which is removed; then the lower slide being drawn out, the prepared plate drops down in the solution, where it is left as long as required, and raised up back in the case by means of a thin hooked silver wire running through a small hole. When up, the lower slide is pushed back to hold it and hide the light, the upper case is then taken out and carried over the camera obscura, where a similar disposition of sliding lids permits also exclusion of light; now the lower slide of the plate case being drawn out, the photographic plate drops down into the camera obscura, falling into its right place, when, by uncovering the object glass for a few seconds, a positive picture is produced with great correctness, even to the most minute size."

[Printed, 4d. No Drawings.]

1861.

A.D. 1861, February 13.—N° 360.

BROWN, WILLIAM.—"Improvements in the manufacture of frames suitable for containing photographic and other portraits and pictures."

"My said improvements consist in making the said frames whole or entire from clay, and by preference I use that kind of clay used in the making of tobacco pipes, and known as pipe clay; but compounds of clay and other substances which are capable of receiving a very sharp impression of the mould may be used. The clay is taken in a moist state, and is forced into a mould to give it the desired shape and pattern. The said mould should be slightly oiled on the inside, and the back of the clay should be covered with a tin plate, to which the clay will adhere and facilitate the withdrawal of the frame from the mould. The moulds when filled are subjected to pressure in a suitable press, to give strength to the frames and sharpness to the impression; after leaving the press the frames are removed from the moulds and placed in a kiln and burnt to give them the necessary hardness, after which they may be gilded, or otherwise ornamented as desired."

[Printed, &c. No Drawings.]

A.D. 1861, February 23.—N° 469.

POHL, LUDWIG.—(*A communication from Paul Iax.*)—"Improvements in albums or books for holding photographs, engravings, and other representations, and in binding together sheets or pieces of pasteboard or such like stiff materials, especially for the purpose of forming such albums or books."

The pages have no raised parts on their surfaces, so that when the book is closed the pages lie flat over one another.

1st. To facilitate the sliding out of the photographs.—"At the under edge of the slit or opening contrived for the purpose, and on the inner side, I attach a strip or piece of paper or equivalent material by another strip placed over their junction, (that is, the part where they touch,) in such manner that this arrangement destroys the obstructive effect of the edge, the strip first named merging as it were into the same plane with the cardboard or

“ material of the sheet to which it is attached, and acting as if it were a continuous surface with it, so that the picture or such like article may slide smoothly over it when being drawn through.”

When there are pictures or the like on both sides of the sheet, “ this arrangement also serves to keep them separate.”

2nd. To bind together sheets of pasteboard.—The following mode is adopted, which is especially applicable to photographic albums:—“ I attach the thick sheets to be bound to folded strips or pieces of leather, cloth, or similar flexible material, which I call connecting strips, each strip connecting one side of one sheet with the adjoining side of the next; I bind or connect together a required number of folds of paper or equivalent material; I attach the back of the leather or other flexible connecting strips to and between the sets of paper (or equivalent) folds. The order of the operations may be varied.”

[Printed, 8d. Drawing.]

A.D. 1861, February 27.—N° 508.

HENRY, MICHAEL. — (*A communication from Gaspard Felix Tournachon called Nadar.*)—(*Provisional protection only.*)—“ Improvements in photography.”

“ According to this invention I combine the employment of electric light or of gaslight with Moitessier's mode of obtaining positives.” Effects dependent upon the control of the artificial light may be obtained, and the operator may dispense “ with a separate room for preparing and developing his plate as he can direct the circumscribed rays of the reflector on the objectivity (objectivité), for the use of this artificial light permits the performance of various operations that have hitherto been performed away from the room exposed to the full daylight. I propose to modify, as follows, Moitessier's method to adapt it for purposes of taking positives by artificial light. Hitherto in known processes frames only have been employed, whereas I propose to use two dark chambers, in one of which are placed the negative plates, or stereotype plates, or clichés, and in the other chamber are placed the glasses treated with collodion intended for the reproduction of the positive stereotype or cliché. The two dark chambers are placed opposite one another, and the space between them is kept dark by a covering; the chambers can be brought mutually nearer or further according to the sizes to be produced; the light is placed in front of the

" first dark chamber and concentrated by a reflector on the negative plate, stereotype plate, or cliché."

[Printed, 4d. No Drawings.]

A.D. 1861, April 6.—N° 852.

KNIGHT, JAMES.—(*Provisional protection only.*)—" Improve-
ments in the manufacture of baths and trays, and other vessels
for photographic purposes, which improvements are also applic-
able in the manufacture of galvanic battery and other gal-
vanic chambers or cells, and other vessels to contain chemical
solutions."

" Baths, trays, and other vessels for photographic uses, as also
for galvanic battery and other galvanic chambers or cells and
vessels for other chemical solutions, are now commonly made
of gutta percha. But in addition to the cost of the material,
vessels made entirely of such material are very liable to leak at
the joints and elsewhere, and my improvements consist in form-
ing such vessels of a comparatively thin lining of gutta percha
or india-rubber, or compounds thereof, and then coating the
same with layers of paper or other fabric or material united
together by means of solutions of india-rubber, gutta percha,
shellac, or other suitable adhesive material.

" By these means economy of manufacture and increased
strength and durability are obtained."

[Printed, 4d. No Drawings.]

A.D. 1861, April 18.—N° 955.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from
Adolphe Fargier and Nicolas Charvet.*)—" Improvements in
producing photographic pictures."

" A coat of gelatine, holding in suspension a carbonaceous or
other powder," is spread upon a surface of glass, and sensitized
by means of bichromate of potash. The coating is then dried,
the picture impressed by exposure to light, and a coating of
" non-iodized collodion " poured upon the gelatine; the collo-
dion film is removed from the glass by immersion in hot water,
and the sheet of collodion floats in the water, showing the
picture which has now become visible." The picture, so pro-
duced is washed, received upon a sheet of gelatinized paper, and,
finally, the coat of collodion is " removed from the picture by
" alcoholised ether or other solvent."

A modification of the above-described process consists in applying a coat of the said gelatinous solution to a sheet of thin paper made from homogeneous pulp. The coating is dried, exposed to light on the ungelatinized side, and the resulting reversed picture detached by washings in warm water.

"A further modification is as follows:—Spread upon a glass a first coating of the gelatinous solution, but without powdered coal, dry and expose for a few minutes to the light, and then in the dark; apply "[and then, in the dark, apply?] "over the first coating a second coating with the powdered coal, allow to dry, place the glass in the frame upon the plate, not on the gelatinized but on the opposite side, expose to solar rays, and the picture is obtained upon glass, from which it is removed by washings in warm water."

"The action of light coagulates the gelatine and retains it on the surface of the collodion, of the paper, or of the glass with the powdered coal."

[Printed, 4d. No Drawings.]

A.D. 1861, April 29.—N° 1074.

DIXON, HENRY.—(*Provisional protection only.*)—"Improvements in photography."

"This invention consists in mixing nitrate of silver with collodion or other coating medium prepared in the ordinary manner, in the proportion of about five grains of silver to each ounce of collodion or other coating medium. The mode ordinarily practised for coating plates of glass with collodion or other coating medium has been first to pour the prepared collodion on the plate, and then to immerse it in a nitrate of silver bath to coat it with silver. Now, the intention of this invention is to dispense with the use of said bath by mixing silver with the collodion or other coating medium, so that after pouring the collodion or other coating compound on the plate intended to receive the picture, it is simply necessary to wash the plate in water to remove the grease therefrom. The plate is then ready for exposure in the camera. The usual developing solutions may be employed. By this invention the numerous objections attending the use of a nitrate of silver bath are entirely dispensed with, and the process rendered more certain, convenient, and considerably less expensive than heretofore."

[Printed, 4d. No Drawings.]

A.D. 1861, May 1.—N° 1089.

HOOMAN, THOMAS, and MALISZEWSKI, JOHN.—“Improve-
ments in photographic printing upon the interior of any glass
or other transparent vessel.”

A waxed paper photographic negative is fixed “upon the
exterior” of that part of the vessel wherein the picture is
intended to be made; for this purpose a gutta percha mould
completely covers the vessel, “with the exception of an aperture
of the size of the negative wherein it is placed, the light being
thus wholly excluded from all other parts of such vessel.”
Collodion is then poured into the vessel, sensitized, and exposed
to the even light in such manner that the power of light shall
act equally around and through the transparency of the vessel
upon the sensitized substance fixed on the interior of such
glass or other transparent vessel; the picture is developed in
the usual manner. “When dry, we back the interior of such
glass or other transparent vessel with oil colors in imitation of
marble, alabaster, wood, or any other fancy decoration, by which
means the portrait, landscape, view, picture, arms, device, or
ornament is rendered permanent, and thus protected on the
inside thereof by such body of oil paint, and on the outside it
is protected by the glass or other transparent vessel.”

[Printed, 4d. No Drawings.]

A.D. 1861, June 8.—N° 1457.

DU MONT, HENRY.—“A photographic apparatus, having for
object to reproduce the successive phases and shiftings of a
motion.”

A succession of sensitive surfaces “succeeding each other
at regulated intervals” are exposed to light “at regulated
intervals, and in due time, that is to say, when the plane of the
sensitive layer is perpendicular to the axis of the ray.”

A prismatic drum, whose periphery is mounted with sensitive
layers, is caused to revolve so that the sensitive layers “succeed
each other in the focus of the obscure chamber.”

“Another means of obtaining the quick succession of the
sensitive layers is to place them together side by side on an
ordinary sash, but much longer, and moving intermittently in
its groove, vertically or horizontally.”

A third method of accomplishing the said object "is to set them behind each other in a long box with vertical grooves, and moving in a contrary direction to a similar box situated under it, and intended to receive the layers impressed by the light." A ratchet wheel and ratchet movement enable the sensitive layers to fall into the lower box as they are impressed.

The exposure of the sensitive layers to light at the proper instant is accomplished by means of "a black moveable screen, the regulated motions of which are connected with the motions of the system bearing the sensitive layers."

"The series of images thus produced, viz., the series of motions of a dancer, of one or more soldiers, of a machine, &ca., &ca.," may be utilized, "both for the pleasure of the eyes and for other purposes."

[Printed, &c. Drawing.]

A.D. 1861, July 12.—N^o 1756.

SMITH, THOMAS JOHN.—"Improvements in photographic albums."

This invention "relates to an improved manufacture of photographic albums, the improvements consisting in the manufacture of the leaves of such albums of parchment, vellum, textile fabric, or paper mounted upon textile fabric, such materials being more durable and less liable to be torn by the insertion and removal of the photographic pictures than the paper or cardboard hitherto employed in the manufacture of the leaves of books for this purpose.

"In addition to the advantage of greater strength and durability, a further advantage arises from the use of the materials above mentioned, inasmuch as the sewing or stitching of the leaves when binding the album is entirely dispensed with, there being sufficient strength in the leaves to admit of their being simply glued to the back piece."

The Specification describes, and the drawings show a sheet of parchment pasted "over the two contiguous faces of any two of the leaves, the body or inside part of such leaves being composed of cardboard" "cut out in the centre to allow for the thickness of the photograph in the usual manner." The series of leaves being united by the cementing of the above-mentioned sheets of parchment thereon "are glued to the back piece," "and thus the necessity for sewing is avoided."

[Printed, &c. Drawing.]

A.D. 1861, July 24.—N° 1855.

NEVILLE, HENRY.—(Provisional protection only.)—"Improved apparatus for taking photographs."

"My invention consists of apparatus made of wood or metal, or both, for taking micro-photographs and other minute photographs; also for taking magnified microscopic photographs on metal, glass, or paper, by means of which apparatus the reduction of the photographs as at present performed is rendered unnecessary, the photograph being obtainable from the object itself. The instrument is in shape similar to a common camera, about eighteen inches in length; at one end is attached a brass telescope tube, forming what is termed 'the coarse adjustment.' Outside of the last-mentioned tube is placed a larger tube having a fine threaded screw or rack and pinion forming 'the fine adjustment.' Attached to these tubes is a piece of metal or wood, dovetailed into which slides a box containing the prepared plate, which rests upon silver pins, and is secured in its proper position by means of springs attached to a lid covering it, made of metal or wood. Inserted in the centre of this lid is a microscope for the purpose of focusing the object to be copied, which, when once adjusted, enables the operator to take any number of photographs without further adjustment or alteration."

[Printed, 4d. No drawings.]

A.D. 1861, August 3.—N° 1936.

LEWIS, JOSEPH.—"Improvements in producing and treating printing surfaces, in producing and preparing transferring surfaces, in transferring, in producing impressions on an altered scale, in preparing or treating surfaces of lithographic stones, and in obtaining devices or designs; also in agents and apparatus used in some of such improvements, parts of the invention being also applicable to photography, and to ornamenting pottery, porcelain, and glass."

(Of the 26 heads under which this invention is set forth, the following have the most immediate reference to photography:—

5th head.—An "automaton register," consisting of certain fastening frames by which etchings, exposures to light, &c., can be repeated until perfect results are obtained.

6th head.—“Obtaining photographs, photo-lithographs,” and photo-prints by means of the “automaton register.”

7th head.—To transfer photographs to a printing or transferring surface.—“Oil of lavender and asphaltum” is the sensitizing mixture used. When the image is impressed, it is fixed by means of a mixture of turpentine and bisulphide of carbon. Successive sensitizings and fixings take place until a perfectly developed copy is produced, such of the fine tints as are sufficiently developed from time to time being protected from further action by means of an opaque powder.

10th head.—Using “oil of lavender and asphaltum as a sensitive medium in photographic operations.”

11th head.—“Producing printing surfaces by means of repeated photographic or other impressions on extended india-rubber or gutta percha, which is afterwards allowed to collapse or not.”

13th head.—Bichromate of potash is employed “as a photo-actinic medium,” “in combination with gelatine or other substance, which will” “retard the crystallization of such bichromate” using the compound either in solution or in powder upon stone, cardboard, paper, or metal, previously covered with transfer ink, “also as a sensitive mixture instead of asphaltum and oil of lavender.”

23rd head.—Photographic negatives are obtained by means of “a modification of the automaton register” in which the plate is placed for the negative. A first picture having been produced thereon, it is again coated with a sensitive medium and the picture reproduced. This is repeated as often as desired.

24th head.—The use of successive sensitive coatings and reproductions as a means of raising the design to a sufficient height to be stereotyped or electrotyped.

25th head.—The application of the “automaton register” “to the production of printing surfaces by the photoglyphic and other processes.”

[Printed, 4s. 2d. Drawings.]

A.D. 1861, August 20.—N° 2073.

SUTTON, THOMAS.—“An improved camera for taking photographic portraits and instantaneous pictures.”

“The body of the camera is an oblong box of the usual shape, having the end open for the reception of the dark slide, and

“having an orifice in the front for the lens. At the upper edge of the open end of the camera is hinged a moveable plane reflector.” “When this reflector is placed within the camera at an angle of 45° with the top or bottom, and the sensitive plate is put in its place behind it, with the front shutter of the dark slide open, the reflector must be large enough to shield the sensitive plate from the light which passes through the lens. Thus, when the reflector is turned up on its hinge till its lower edge touches the top of the camera, the image formed by the lens will be thrown upon the sensitive plate; but when the reflector is turned down till its lower edge touches the bottom of the camera, and makes an angle of 45° with it, none of the light from the lens can fall upon the sensitive plate. The reflector may be turned up and down on its hinge instantaneously by any suitable contrivance with an external handle.

“Instead of a focussing screen, which in an ordinary camera fits into the open end of the camera, the focussing screen is fitted into an open panel in the top of the camera, so that when the face of the reflector is turned towards the lens at an angle of 45° with its axis, an erect image is thrown upon the screen.” “The plates of the focussing screen, the sensitive plate, and the reflector must have a common line of intersection, and the latter plane must bisect the angle between the two former planes.”

“The focussing screen may be made either of plain ground glass or of ground glass of an orange tint, so as to intercept the entrance of actinic rays into the camera.”

[Printed, *Ed.* Drawing.]

A.D. 1861, September 19.—N^o 2347.

DAGRON, RÉNÉ PRUDENT PATRICE.—“An improved microscope to be used for exhibiting photographic views and productions.”

This invention is based upon certain parts of N^o 801 (A.D. 1860); it consists of a double-image tubular microscope. Each lens is fixed to its own tube which slides on a smaller tube, the smaller tube serving to connect the lens tubes together and to enable them to be placed properly for focussing; the said smaller tube “can be furnished with a diaphragm” [diaphragm?]. The photograph to be viewed, by means of the lens at one extremity of the apparatus, is placed on the lens at the other extremity.

According to another arrangement the said microscope may be made entirely of glass. When three pieces of glass are used, the external pieces are plano-convex, and are glued to a cylindrical piece at opposite ends, with the photographs placed within the joint. The cylindrical portion of the microscope may consist of three separate portions, so as to render the instrument achromatic. The intermediate glasses may be dispensed with, a cylindrical piece convex at each end being employed; in this case a photograph is placed on each end and is protected from injury by varnish. The photographs may be fixed on a piece of glass placed between the lenses; the distance between the lenses should be such that each lens renders the image in front of it distinctly enlarged.

[Printed, 8d. Drawing.]

A.D. 1861, September 30.—N° 2434.

GEORGE, BENJAMIN GEORGE.—“Improvements in the mounting of tablets, show bills, prints, photographs, and drawings, and of producing embossed ornamentation applicable to various purposes.”

This invention consists in improvements in the processes set forth in No. 3004 (A.D. 1860), “and relates chiefly to the mounting of tradesmen’s show bills and other similar articles.”

The said article is mounted upon a slab of plaster of Paris or composition “by means of any suitable cement.” To put an ornamental border to the article, the inventor uses “moulds formed from a model of the pattern or design required, and from which casts may be taken in plaster of Paris or other composition; and these ornamental portions, which may represent the frame, or any other part of the show bill or other design, may be gilt or painted or otherwise ornamented, as desired, and the show bill or design may be mounted upon the smooth or other portion of the cast, and the whole or any part thereof may then be covered with varnish, gelatine glass, or other suitable preserving material.”

[Printed, 4d. No Drawings.]

A.D. 1861, October 8.—N° 2513.

SDALE, JOHN EDWIN.—(*Provisional protection only.*)—Improvements in certain tickets or passes for railway and other uses.”

"This invention consists in the production of a new description of tickets or passes, particularly where such tickets or passes are granted by railway companies and others to persons travelling or having rights of admissions for stated periods of time, and the object of the improvements is a safeguard to the companies or others issuing them against the transfer of such tickets or passes to others than the persons entitled to use the same; this object is effected by manufacturing or producing in any simple and convenient manner, and by the aid of photography, tickets or passes, each of which bears upon a conspicuous part of it a portrait of the person to whom the ticket or pass is issued, so that upon the customary production of such ticket or pass the person appointed to check the same would at once see by comparing the portrait on the ticket or pass with the person presenting the same, that such ticket or pass was presented by its true owner."

[Printed &c. No Drawings.]

A.D. 1861, November 1.—N° 2739.

CLARK, WILLIAM. — (*A communication from Claude Mamès Augustin Marion.*) — (*Provisional protection only.*) — "Improvements in photograph albums."

"This invention relates to improvements in albums for holding photographic portraits, the object of which is to facilitate the introduction and removal of said portrait cards from the frames or cases forming the leaves or divisions of said albums. At the present time the cards are introduced at an opening, of the same width as the card, made at the lower part of the leaf, which being made in the thickness of the card leaves a projecting edge, and renders the picture difficult of removal. I obviate this disadvantage by covering the projecting edge with a sheet of paper, which guides the picture card over the projection, and prevents its catching."

The drawings show the ordinary arrangement at present in use as well as the improved arrangement.

[Printed, &c. Drawing.]

A.D. 1861, November 5.—N° 2781.

BOURQUIN, JOHN PETER. — (*Provisional protection only.*) — "Improvements in ornamenting the covers of photographic albums, books, writing cases, and other like articles."

PH.

C

"The object of this invention is to ornament the covers of
 "albums, books, writing or blotting cases, and other similar
 "articles, by applying thereto decorations resembling inlaid
 "woods, known as marqueterie and wood mosaics. This I pro-
 "pose to effect by printing upon veneer mosaic and other
 "designs, and thereby imitating differently colored woods
 "arranged in patterns. Having selected, say, a veneer of white
 "wood, I attach the same to cloth by cement before printing, to
 "protect it from breaking or splitting under the pressure to
 "which it will be subjected. The wood being damped is placed
 "in the lithographic press to receive the prepared design, which
 "is then transferred thereto in the same manner as colored
 "designs are applied to paper. When printed with the requisite
 "number of colors to complete the pattern the wood is laid
 "aside for the colors to harden, and when this is accomplished
 "the wood is polished and varnished, and may then be applied
 "to the book or other cover in the form of a border, corner pieces,
 "lines, panels, or even as an entire covering for the lids or for the
 "back, as may be thought desirable."

[Printed, 4d. No Drawings.]

A.D. 1861, November 13.—No 2860.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from
 Auguste Marion.*)—"Improvements in albums for containing
 "photographic and other pictures."

The two parts which, when united, form one sheet of the album,
 are attached to a zig-zag backing of parchment, in the recessed
 parts of the said backing, through certain hinge pieces; "the
 "intermediate folds" "of the backing render the sheets inde-
 "pendent of one another, and enable them to be fully opened
 "out without one sheet dragging on another." "The two parts"
 "are formed of two leaves" "hollowed out at the centre to
 "allow of the pictures being seen." "An incision" "rounded
 "at its two ends, allows of the insertion of the picture, and to
 "avoid any stop or impediment to its withdrawal, the lower end
 "of a sheet," "which does not extend beyond the edge of the
 "frame, is attached to the tongue formed by the incision."
 "Intermediate pieces of thin cardboard" "are pasted or glued
 "behind the leaves" "and the sheet;" "thus the finished sheet
 "shews on each side a central opening for viewing the pictures,
 "with a slot for their introduction and withdrawal." The edges

of the hinge pieces are inserted between the intermediate pieces and the leaves, "and the backs of the hinge pieces are sewn to the backing." "The threads which secure each sheet of the album pass through the middle of the hinge pieces, and when the two parts " have been fixed together the sewing is entirely hidden."

[Printed, 18d. Drawings.]

A.D. 1861, November 21.—N° 2924.

POLYBLANK, GEORGE HENRY.—(*Letters Patent void for want of Final Specification.*)—"A new or improved method of protecting and preserving photographic and other prints, water-color drawings, and other works of art from injury and decay."

"If the paper, material, or fabric upon which the print or work of art has been produced be of such a nature as to absorb the preserving or any liquid put upon it, I first saturate the material or fabric with some clear size which will not injure the work of art printed or otherwise put upon it, and when the sized print or work of art is dry I press it, when necessary, in order to make it flat and level and it is then ready for the next process. I take the print or other work of art to be preserved, either previously sized or not, as may be necessary, and entirely coat it with paraffin, made fluid by means of heat, so as to be capable of being spread over the print or work of art without injuring it. The coating is then to be allowed to set or become dry, and the covering thus put upon the print or other work of art will protect and preserve it from the injurious effects of atmospheric and other influences."

[Printed, 4d. No Drawings.]

A.D. 1861, November 27.—N° 2996.

AMPHLET, SAMUEL.—"An improvement or improvements in ornamenting surfaces."

This invention "consists in ornamenting surfaces by the combination herein-after described of tartan or Scotch plaid patterns or imitation tortoise-shell, with photographs of objects without any other background than the said tartan or Scotch plaid patterns or imitation tortoiseshell."

“In carrying my invention into effect I employ photographs taken on paper or other flexible material on which positive photographs are or may be taken, and I prefer photographic portraits or groups or photographs of sculpture or statuary. I cut away all the background of the photograph, leaving only that portion of the said photograph which consists of the portrait or group, or picture of the sculpture or statuary or other detached object or objects. I rule the tartan or Scotch plaid patterns on the surface to be ornamented, or I paint, print, stain or otherwise colour the said surface in imitation of tortoiseshell, and I attach the photograph thereto by paste or size or other adhesive material. I then size, varnish and polish the surface in the manner commonly practised in finishing surfaces ornamented with tartan or Scotch plaid patterns. Or instead of producing the tartan plaid patterns or imitation tortoiseshell upon the surface of the article to be ornamented, I rule paper with tartan or Scotch plaid patterns or paint, print, stain or otherwise colour paper in imitation of tortoiseshell, and I affix the photograph to the said ruled paper or paper colored in imitation of tortoiseshell. I afterwards apply the said tartan plaid or imitation tortoiseshell paper with the photograph upon it to the surface to be ornamented.”

[Printed, 4d. No Drawings.]

A.D. 1861, December 4.—N^o 3044.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Henry Strauss.*)—“Improvements in albums or books for containing and showing photographic and other pictures, and in slides for the same.”

“I take two of such sheets of paper with apertures in the centre as are generally used in albums for showing photographic pictures, and unite them at three sides, after having interposed a strip or strips of thick paper, cardboard, or the like, equal or nearly so to the thickness of two of the pictures to be contained and shewn. Thus the sheets will be united at their edges on three sides to interposed filling pieces, and one side will be left open for the insertion of the slide hereafter described.”

“The slides consist of a frame of cardboard or thick paper equal in thickness to the interposed filling pieces. To one edge of the frame on both sides a sheet of gelatine, talc, or

" other transparent material is attached, the space left in the frame is calculated to receive two pictures back to back. After being inserted in the space in the frame, each picture is entirely covered by the gelatine or talc. The slide is formed with angle pieces, and when inserted between the sheets of paper, the outer edge of the slide fills up the space between the unclosed edges of the two sheets."

The drawings show a card placed in the frame which " may be used as a support to the pictures which are placed back to back, one on each side of the card."

[Printed, *6d.* Drawing.]

A.D. 1861, December 9.—N° 3080.

MENNONS, MARC ANTOINE FRANÇOIS. — (*A communication from Louis Henri Bouillette and Jean Amable Hyvelin.*)—" A new or improved combination of microscopic photographs and lenses with certain precious stones or imitations thereof."

" This invention consists in the application of microscopic photographs and lenses or lenticular surfaces to such precious stones and imitations thereof as possess a sufficient degree of transparency to allow the passage of the visual rays.

" To this end the microscopic photograph is applied either directly or by transfer to the under surface" of a section of the gem, cut in the form of a thin zone or frustrum of a cone. " To this surface is then adapted, by Canada balsam, Venice turpentine, or other suitable adhesive matter, the pyramidal counter-part," " to the apex of which is cemented a small magnifying lens." " The complete gem " " is then mounted in a ring, watch key, breast pin, or other setting, the point of which is pierced to form eye piece in the axial line of the lens corresponding with the microscopic object in the centre of the front plate.

" Instead of adapting a separate lens as above, the apex of the gem may, in certain cases, be ground to a lenticular surface, but this process is generally more difficult and less economical than that just described.

" Or, again, the photograph, instead of being applied directly to the plane surface of the front plate, may be formed on a separate disc of transparent matter, which is interposed between the sections of the gem, and secured by cement as above."

[Printed, *4d.* No Drawings.]

A.D. 1861, December 11.—N° 3105.

SCHLOSS, JOSEPH.—(*A communication from Simeon Schloss.*)—(*Provisional protection only.*)—"An improvement in forming the leaves of albums, and books for containing photographic portraits and views."

"In the leaves as now made, the pictures are introduced into, and when required removed from each leaf through an aperture or space made or left at the side, top, or bottom, or through a slit made above the top or under the bottom of the window, or space, made for showing the picture. Now in this invention neither such space, aperture, nor slit is made, but the leaves are so put together that the pictures are introduced and removed through the windows themselves.

"The invention consists in interposing between two sheets of paper with windows cut therein, and which are intended to form the front and back of a leaf of the album, or book, one or two thicknesses of stout paper, equal in size to the window sheets, but without any parts removed, then in fixing along the edge of these interposed pieces of paper, and on both sides thereof, a frame or beading of card, or millboard, or other suitable material extending inwards from the edge, only about a quarter of an inch more or less. The two first named sheets of paper are next attached to the cardboard frames, and the leaf for the album or book is complete. The photographic picture is introduced cornerwise through the window, and is worked into position by pressure of the finger."

[Printed, 4d. No Drawings.]

A.D. 1861, December 14.—N° 3147.

DEBENHAM, WILLIAM ELLIOTT.—(*Provisional protection only.*)—"An improved plate holder for photographic purposes."

"The invention consists in so forming the plate holder for the purpose of holding photographic plates while undergoing chemical action, that there shall be no risk of the hands of the operator being stained or soiled by the spilling of the chemicals used, nor danger of the plates falling off the holder."

The Specification describes and the drawing shows a holder having a handle "in which is inserted a stout metal wire or other material," which is bent into such a form as to afford three support to the plate; the wire also branches into two

parts from the handle; one of the parts being straight may be used as an additional support to the plate, the other part carries the points of support or "guards" above mentioned. The "guards" "may be made of gutta percha, wood, glass, metal, caoutchouc, or other suitable material," and "serve to prevent the plate from falling off the holder. The guards are so formed as to present a surface slightly slanting outwards, in order that the lower edge only of the plate touches and rests on the holder and guards (the upper edge never coming in contact therewith), so that the danger of staining the plates which might arise if any part of the holder were to touch their upper or coated edge is entirely obviated. The handle is raised above the level of the surface of the plate, the wire "being bent upwards previously to its insertion into the handle. The shape of the holder may be varied according to circumstances, and the guards may be arranged in different positions to those shewn in the drawing, the principle of the invention being nevertheless adhered to."

[Printed, &c. Drawing.

A.D. 1861, December 26.—N^o 3232.

SCHLOSS, JOSEPH.—(*A communication from Simeon Schloss.*)—(*Provisional protection only.*)—"Improvements in envelopes for containing photographic portraits and pictures."

"This invention consists in forming envelopes, intended chiefly for containing 'carte de visite' portraits, and for their being forwarded conveniently by post as hereafter described. I take a sheet of paper or paper cloth, or other material suitable for envelopes, and of a breadth equal to the length of the envelope when finished. I form the usual flap at one end of the paper, and form a frame in or on the opposite end, either by folding the paper over on itself, or by the employment of a separate frame of paper. In the first case, that is, where the paper is folded over, I first cut the 'window' or aperture therein, for showing the picture, and cement the top and bottom edges to the other part of the sheet; one side will thus remain unattached for the insertion of the picture. Where the frame is in a detached piece, I attach it at top and bottom and one side. After insertion of the picture, that part of the sheet on which the frame is applied, together with the picture and frame, is folded over, and the flap is folded over the back of that part

“ on which the frame is applied. When several pictures are to
 “ be enclosed, I use a greater length of paper, and apply addi-
 “ tional frames, and where only two pictures are to be enclosed,
 “ I apply an additional frame on that part of the paper which
 “ when the envelope is folded covers the face of the first picture.”

[Printed, 4d. No Drawings.]

1862.

A.D. 1862, January 13.—N^o 95.

SCHOTTLANDER, HENRY.—(*Provisional protection only*).—

“ Improvements in albums for containing photographic and other
 “ pictures.”

“ My invention consists in so forming the leaves of albums
 “ that the picture or pictures, together with part of the leaf
 “ holding the same, may be placed and held at an inclination so
 “ as to obtain the most suitable light for viewing the pictures.”

“ I apply on each side of every leaf, or on one side only, a frame
 “ for holding one or two pictures, and unite it at one side or end
 “ only, and I make a tongue or frame in or on the holding frame.
 “ When the album is closed, or when the leaves and pictures are
 “ in their ordinary position, the holding frames, pictures, and
 “ tongues do not protrude beyond the thickness of the leaves.
 “ When the album is opened, and any picture is to be viewed,
 “ the holding frame is raised and the tongue or back frame is
 “ protruded outwards and the frame resting partly upon it is
 “ maintained inclined. If desired, pictures may be held in the
 “ leaves which are covered by the holding frames, and which can
 “ only be seen when such frames are raised.

“ Again, instead of the tongue or supporting frame before
 “ mentioned, I sometimes form the support by hinging a piece of
 “ cardboard, or other suitable material to the top of the holding
 “ frame which is pushed outwards for supporting the holding
 “ frame, and which is folded inwards and under the holding
 “ frame when the pictures are not required to be raised to be
 “ viewed.”

[Printed, 4d. No Drawings.]

A.D. 1862, February 7.—N° 322.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Louis François Saugrin.*)—"Improvements in stereoscopic albums, "books, and cases."

"This invention consists in combining a stereoscope with an album case or book in such manner that both may be folded and occupy a small space."

The stereoscopic case contains the photographic pictures, and its hinged cover has a lock for securing the case when closed. By means of flaps united to a hinge, "the rod of which is sur- rounded by an adjusting screw" or helical spring, on opening the case the instrument is placed ready for observation. The base of the stereoscope "forms an ordinary slide;" the sides are united by flexible joints, so that they may fold easily. The top plate carries the glasses, which sink down with the sides when the case is closed. This stereoscope may be fitted in the lid of any book or album, or "in a slot in each intermediate leaf." The pictures are all placed one on another in the case on a frame, or movable bottom plate, which rests on helical springs, the pictures are thus raised within the focus of the stereoscope; as they are done with, an axis with a disc at each end and carrying two rollers, causes the pictures to fall into a drawer. So soon as the upper picture has thus slidden away, the spring frame raises the succeeding picture.

When the stereoscope is applied to an album, the slight projection which forms the stereoscope when folded, lies in a recess formed in the cover; a "compass joint" "maintains the opening of the album at the desired inclination."

In "a stereoscopic pocket book," the bottom is made in two parts, and a vertical partition "acts as a support to the apparatus when open." When the instrument has been partially opened, spring hinges wholly place the parts ready for use.

[Printed, 8d. Drawing.]

A.D. 1862, February 18.—N° 429.

SÉGOFFIN, CHARLES DENIS.—(*Provisional protection only.*)—"An improved apparatus for the purpose of viewing photographs "on cards."

"My invention consists in the construction of an apparatus of "a rectangular form, three sides of which are closed, the fourth

“ being partly open for the admission of light on to the card placed at the back, the smaller side opposite, having a magnifying glass which allows of a good view of all the details of the photographic card.

“ For viewing proofs placed in albums I make the apparatus without a back so that all that is required to be done is to place the apparatus over the proofs to see them distinctly. The sides of these instruments are formed with stiff or flexible materials, and of a bellows form, that is to say, with parts folding on themselves. To these small apparatus I have given the name of microphore.”

[Printed, 4d. No Drawings.]

A.D. 1862, February 25.—N° 504.

BLISS, EDWIN, and LAMPLOUGH, HENRY.—“ Improved means for viewing microscopic photographs and other minute objects.”

“ Our invention consists in having a circular disc of metal or other suitable material, with small sight holes perforated therein at a convenient distance from the edge, and at a proper space apart, and placing opposite to each hole the photograph or object to be inspected, and having such disc and objects enclosed in a case with a microscopic lens fixed therein in the line of the holes in the disc, and a hole through the other side of the case directly opposite the lens, so that by causing the disc to revolve the objects placed on or connected with the disc may be brought seriatim in front of the lens in the case, and viewed through it. Of course if the disc be of clear glass no sight holes will be required in it. The disc may be caused to revolve by means of toothed wheels or other known means.”

The drawings represent a disc turned by means of an ornamental boss placed on the side of the case opposite to the eye piece. “ At the outside edge of the disc, and in perfect truth with each object, holes are made that will in conjunction with a bolt and spring,” “ stop each object exactly opposite the eye piece.”

[Printed, 8d. Drawing.]

A.D. 1862, March 8.—N° 636. (* *)

GEBHARDT, JOHN JAMES HENRY.—(*A communication from Herr Kugler.*)—(*Provisional protection only.*)—“ An improved

"fastening for albums and other books, bags, reticules, and other articles."

On the inner side of a plate attached to one side or edge of the article to be fastened, is secured a sliding piece, wherein are fitted spiral or other springs in grooves or recesses, "and on the inner surface of the outer plate are studs, stops, or abutments so placed that the springs may abut against them at one end." The sliding piece carries a knob or finger piece presenting itself on the outer side of the first-named plate through a slot or opening in which it or its shank pin works. The edges of the outer plate are by preference bent inward to form guides for the sliding piece, which carries or is formed with a hook or catch intended to engage with an eye, staple, or its equivalent on the opposite side or edge of the article. "The fastening may be somewhat modified by using a single spring (and stop) instead of two or more, and also by having the travelling plate outside instead of inside the other plate, and the stop on the travelling, the spring on the other plate."

[Printed, 4d. No Drawings.]

A.D. 1862, March 10.—N° 640.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Arthur Guy Morvan.*)—"Improvements in producing by the aid of photography copies of maps, charts, plans, and drawings."

Obtaining a positive image on cloth, paper, or glass, "without the aid of a negative."—A tracing of the design, on transparent drawing cloth, is placed in contact with the sensitized paper, or other surface, the face of the design being next to the sensitive surface; the frame containing this arrangement is exposed to the action of light, and the image is fixed and finished in the usual manner. The sensitizing solution described in the Provisional Specification contains iodide of silver, that set forth in the Final Specification contains "azotate" of silver.

Transferring the design upon the transparent cloth to stone.—The stone is prepared with acid, washed in water, dried, coated with a sensitive varnish, allowed to dry, and exposed to the action of light; it is then washed with white wine, with water, allowed to dry, washed with soapy water, again washed, "and then dried in a stove or otherwise." Ink is then applied, the stone is allowed to rest 24 hours, and washed with essence of turpentine.

Again ink is applied, and the subsequent inking operations are facilitated with phosphoric acid and gum, so as to bring out the design; impressions may then be taken from the stone. By this process the stone gives off positive impressions. The varnish contains white of egg and bichromate of ammonium, and those parts exposed to light become more or less insoluble. The ink first used contains transfer ink and lithographic crayon, that employed the second time consists of transfer ink and phosphoric acid.

[Printed, 4d. No Drawings.]

A.D. 1862, March 12.—N° 677.

GRISDALE, JOHN EDWIN.—(*Provisional protection only*).—"Improvements in photographic cameras, and in the mode of fixing the lens therein."

The two ends of the camera "are connected together on the four sides" by "lazy-tongs levers," which "are braced together" by "metal braces which pass round and enclose them." "The whole may be covered by the ordinary bellows covering or by a bag."

The lens tube is secured in front of the camera by three or more pairs of hinged radial flaps or arms. By this means different sizes of lenses may be readily fitted into the same camera, provision being made "for excluding the light which would otherwise enter the camera when fitted with this arrangement for securing the lens."

"Another part of my invention consists in the substitution of a peculiar hinged cover for the dark slide in lieu of the ordinary sliding cover, the improved cover being made in four parts, and so arranged that each part will fold back inside the camera, the divisions in the cover being so disposed as to admit of each part folding back into a tapered camera when required to do so."

[Printed, 4d. No Drawings.]

A.D. 1862, March 13.—N° 681.

FONTAINE, FORTUNE HIPPOLYTE.—(*Provisional protection only*).—"A process for reproducing photographs, drawings, paintings, and engravings engraved on metal."

To reproduce engraved plates by "negative stereotypes."—A *laticious solution of bichromate of potash* is poured upon a zinc

plate; when dry, the gelatinous surface is placed in contact with the printed side of the negative, and exposed to light. The zinc is then removed and placed in lukewarm water to dissolve the bi-chromate; the picture appears engraved, and is covered with a solution of gallie or pyrogallie acid and washed. A gutta percha cast is then taken of the plate and a mould in relief is made from the cast; the latter is suitably prepared, and an electrotpe is obtained from it.

To reproduce engraved plates by "positive stereotypes."—A prepared copper plate is covered with a gelatinous solution of bi-chromate of potash and gum arabic; when dry, the gelatinous surface is placed in contact with the printed side of the positive, and exposed to light. The copper plate is then removed and covered with a solution of perchloride of iron; this solution expands "the unimpressed or soluble parts of the gelatine dissolves the bi-chromate and prepares the way for the acid, by which I hollow out the picture or image in presenting it in relief to its action;" when the picture is developed and engraved by the said method, the acid is poured off, "and the plate is ready for impression and the reproduction of copies identical with the original."

[Printed, *ed.* No Drawings.]

A.D. 1862, April 3,—N^o 948.

MANN, ALEXANDER.—"Improvements in photographic apparatus."

1st. A camera shutter for covering and uncovering the lenses instantaneously.—The covering consists of two pieces, which, by means of a spring and elastic bands, are separated in front of the centre of the lens, and their motion takes place "in opposite directions towards the edges of the lens."

2nd. "Changing the direction of the lens and picture without moving the apparatus."—A "turntable movement" is arranged under the front part of the instrument. The Final Specification does not mention this improvement.

3rd. "Affording a longer period of time for the action of light on the foreground of the picture than on the sky or upper part."—A curtain of dark paper, with the horizon line cut away upon its upper part, is situated in the interior of the camera near the picture, and is capable of being removed downwards by means of an

elastic cord. Another apparatus for effecting the same object consists of a small rectangular box, placed upon the front of the lens tube, which contains a frame carrying a number of uniform pieces of metal capable of sliding up and down with friction; a light-proof covering is thus formed to the upper part of the front of the box.

4th. Apparatus for finishing paper photographs.—The sliding table on which the picture rests is heated by means of gas, so as to afford “the advantages of hot-pressing with perfect safety from charring the picture.” This arrangement is not alluded to in the Final Specification.

[Printed, 6d. Drawing.]

A.D. 1862, April 8.—Nº 996.

CARTER, CHARLES PEMBERTON.—(*Provisional protection only.*)

—“An instrument for inserting photographic or other pictures into or removing them from between the ‘mounts’ of photographic albums or other flat spaces, into which the fingers cannot be inserted.”

The instrument resembles a pair of pliers, “but with the jaws gradually thinned down to an edge at their extremity, and more or less widened out.” The inner surface of the lower jaw is roughened, “whilst the corresponding surface of the upper jaw is made quite smooth. When quite closed, these surfaces “meet only at their extremity.” “The ends of the jaws being made quite thin they can be inserted with facility into the narrow space of the mount, together with the picture, so as to adjust it accurately in its position, or they can be easily inserted between the surfaces of the picture and the ‘mount’ for the purpose of removing the former from between the latter. The handles of this instrument may be formed straight, and in a line with the jaws, or, by preference, I bend them, so as to be at an angle with the same for more convenient manipulation, or they may be first bent up at an angle, and the extremities bent down again parallel with the jaws. I sometimes also introduce a spring between the handles to press them open when let go by the hand; and in some cases I form one of the jaws with a sharp knife-edge for cutting the pictures; or I form the handles close to the hinge as scissor blades for the same purpose. This instrument may be formed of any suitable material, and it may

" be employed for inserting pictures into any other flat spaces besides those in the ' mounts ' of photographic albums."

[Printed, 4d. No Drawings.]

A.D. 1862, April 11.—No 1042.

GARNETT, JOHN.—(*Provisional protection only.*)—" Improve-
ments in apparatus for washing photographic pictures."

" This invention relates to a peculiar construction of apparatus for washing photographic pictures, and consists in the employment for that purpose of a shallow box perforated on its upper and under side, into which box the prints or pictures requiring to be rinsed or washed are deposited, suitable divisions being placed in the box to separate the different sizes of prints, which divisions or partitions are made moveable to suit different sizes. The box with the photographs therein is placed inside a convenient reservoir of water, and a vertical motion is imparted to the box whilst submerged by means of a handle or other suitable device so as to cause the water to flush alternately through the top and bottom perforations in the box and thereby effectually rinse the pictures on both sides."

[Printed, 4d. No Drawings.]

A.D. 1862, April 25.—No 1222.

McLACHLAN, LACHLAN.—" Improvements in governing or regulating light used for taking photographic portraits and other photographic pictures, part of which improvements is also applicable to lighting picture galleries."

1st. " A method of preventing the direct rays of the sun from falling upon the sitter or other object to be copied, and of modifying or directing the light as occasion may require."—Strips of wood are mounted upon centres so as to hang downwards from the roof or to be inclined at any angle; cross pieces may be placed within the spaces formed by the strips. To regulate the side light, projecting slips, which extend sideways, are used in combination with partitions situated within the spaces between them."

2nd. " A method of preventing light from being reflected from the surface used as a background in taking photographic portraits."—Over the framework of the background is stretched a surface "of gauze or other material, which is partially trans-

“parent.” Behind this is placed black velvet “or other material which will absorb light,” the effect of which is, that, instead of the light being reflected from the surface of the background, it passes through it and becomes absorbed by the black velvet screen; or a second transparent surface placed at an angle may be used, one part of the background can thus be obtained of a darker shade than the other. The angle at which the last-mentioned surface is placed may be determined by means of bolts which pass “through rails at each side.”

3rd. “The application of the above-mentioned method of regulating light to the lighting of picture galleries.”

[Printed, 8d. Drawing.]

A.D. 1862, April 30.—No 1267.

HARRINGTON, JOHN, and PERKINS, THOMAS.—(*Provisional protection only.*)—“An improvement or improvements in mounting photographic portraits for visiting cards, and in mounting photographs in general.”

“Our invention consists in making a depression in that part of the card at which the photograph is to be mounted; the said depression being of the size and shape of the photograph, and constituting a sunk recess, in which the photograph is placed, and secured by gelatine or other adhesive material. The depression or recess may either extend through only part of the substance of the said card mount, or through the whole substance of the said card mount; that is, the depression or recess may be made in the front of the card mount without any corresponding projection at the back or opposite. The depression in front may be a corresponding projection at back. When we make the depression in front without a projection at back, the card is compressed at the sunk part into a less thickness than that of the other parts of the card. When we make a projection at back, a thinner card may be employed than when there is no projection at the back. The depression may be surrounded with an ornamental border. The sinking of the photograph in the card mount preserves the photograph, and gives it an elegant appearance.

“Our invention is particularly applicable to small photographs for visiting cards, but is also applicable to photographs of larger size. We make the depression in the card mount by means of dies and pressure.”

[Printed, 4d. No Drawings.]

A.D. 1862, May 14. N° 1453.

BROOMAN, RICHARD ARCHIBALD.—*A communication from Leon Parrens.*—"An improved method and apparatus for the production of photographic and stereoscopic portraits and pictures."

"This invention consists, first, in the construction and employment of instruments containing lenses capable of producing portraits or pictures, distorted in length, breadth, and obliquity;" "second, in the production of a new style of photographic portrait, distorted in length, breadth, and obliquity, possessing all the clearness of an ordinary portrait;" "third, in the application of these portraits to the stereoscope;" "fourth in uniting and combining a pair of distorted portraits, according to the plan adopted for stereoscopic pictures reciprocally taken at the desired angles."

"The instrument is chiefly composed of two cylindrical lenses, of different focus, both convergent, the generating lines of one being perpendicular to the generating lines of the other, and combined in such manner that the images they produce are superposed on the same plane." "This combination concentrates the rays of light so as to give an elliptical image. If the object is set on the small axis of the ellipse, the portrait will be short in comparison to its width; "if it is set on the chief axis it will be lengthened, enlarged, and thin." If the two cylindrical lenses are not quite perpendicular, or if the object is not set on either axis of the ellipse, the figure will be distorted throughout. Ordinary lenses may be used in combination with the cylindrical lenses. "If two stereoscopic prints are distorted, they will remain stereoscopic after the distortion."

[Printed, &c. Drawing.]

A.D. 1862, May 19.—N° 1516.

MORRIS, TIMOTHY, WEARE, ROBERT, and MONCKTON, EDWARD HENRY CRADOCK.—"The title of this invention is "Improvements in obtaining and applying light and heat by electricity;" "light suitable for various kinds of photography" is mentioned in the Provisional Specification.

"Our invention consists in obtaining light by passing electricity through vacuum tubes or other suitable vessels, the electricity employed being obtained from frictional, electro-
PH.

“ magnetic, magneto-electric, or hydro-electric machines, and also
 “ from other sources, but we prefer to obtain it from our induction
 “ coils, as patented on October 24th 1861, No. 2661, in connection
 “ with our patented batteries, and to obtain heat also with or
 “ without such induction coil by means of such batteries.”

After mentioning several applications of their methods of obtaining and applying light, the Patentees state:—“ We also use our
 “ light in conjunction with lenses and glass of various colors and
 “ variously compounded, in order to produce light suitable for
 “ various kinds of photography; and we also use ground glass
 “ and other suitable media over our vacuum vessels, in order to
 “ diminish the light; and we further use a metallic or other cover
 “ of a suitable shape and contrivance to place or draw over the
 “ light, in order to shut it off as required.”

[Printed, 4d. No Drawings.]

A.D. 1862, May 29.—N^o 1611.

HIRST, JOHN, junior, and WOOD, JOSEPH.—“ Improvements
 “ in stereoscopic apparatus.”

“ The object of the improvements is to neutralize the granular,
 “ fibrous, and general coarseness of objects seen through stereo-
 “ scopic glasses, especially when high magnifying powers are
 “ employed, and also to produce various changes of effect to such
 “ objects.”

Tinted, transparent, or semi-transparent media are so applied
 that the light falling on the front of the picture may pass through
 them without intercepting the vision, When the picture is
 transparent, the said tinted media may be applied in combi-
 nation with other tinted media at a short distance behind the
 picture.

When the picture is transparent, tinted transparent, or semi-
 transparent media are applied “ at a short distance behind the
 “ picture, so as to produce varied effects to the picture;” the
 media are connected “ by cords, strings, or chains, or otherwise,
 “ so that there may be intervals between the respective media,
 “ when the natural color of the transparency may be seen.”

In connection with stereoscopic apparatus, a lamp is applied,
 “ with a shade or shades, lenses, and transparent or semi-trans-
 “ parent media of various tints and shapes.” Separate slides may
also be added to the transparent picture.

The drawings show apparatus in which flexible transparent media are mounted on rollers, which are turned by means of suitably placed milled heads. Parts of the media are shown removed, to allow the light to fall direct on the picture.

[Printed, 1s. 8d. Drawings.]

A.D. 1862, June 7.—N° 1712.

HASELTINE, GEORGE.—(*A communication from Allen Benjamin Wilson.*)—"A new and improved photographic camera."

The camera box is made to serve as a dark chamber, besides being employed to expose the sensitive surface to the action of the light that has passed through the lenses of the instrument. Opposite to the camera tube is a door shutting tightly. Bearings, rotated by a key, enable the focus and negative glasses to be turned up and down. The negative glass holder and the bath are combined in one instrument. The journal is hollow and has a crooked stem funnel inserted from the outside of the box.

The focus glass holder being placed in the bearings, is turned into a vertical position, and the focus is obtained. The negative collodionized glass, secured to the plate holder, is then placed in the bearings with the collodion towards the lens. When the "tunnel," and the key are inserted, the nitrate of silver solution is poured through the tunnel on to the horizontal plate. The plate, being sensitized, is turned into a vertical position and the nitrate solution runs off, through the depressed tunnel, into its phial. The plate is then exposed, brought to the horizontal position, and the "developing bath is introduced and removed "as was the first." The tunnel and key may then be removed "and the negative cleaned in the light."

By means of tubes, these operations can be performed when the combined bath and plate holder is vertical.

[Printed, 8d. Drawing.]

A.D. 1862, June 10.—N° 1724.

SMITH, WILLIAM.—(*A communication from Henri Lissagaray.*)—"Provisional protection only."—"Improvements in photography."

"These improvements relate to the ornamentation of photographic works, and chiefly to the production of backgrounds, borderings, and such like aids to the art of photographing

“ objects. For these purposes I produce the design required by
 “ employing a sheet of glass or other equivalent transparent sub-
 “ stance, upon which by galvanic agency I deposit first a coat of
 “ gold or other metal suited for the purpose, and next a coat of
 “ platina or other equally suitable metallic surface. I then engrave
 “ by means of a stile or point the required ornamental design, so
 “ that the light may pass through the lines so marked, engraved
 “ or cut into or through the metallic surface. An open space
 “ may be left in the centre or other part or parts of the plate
 “ prepared as described, so that a portrait or portraits, or other
 “ subject or subjects intended to be reproduced may be introduced
 “ behind or before such space or otherwise in combination with
 “ such engraved plate.

“ This process when used for ornamenting photographic
 “ proofs, is employed by means of double stereotype plates of
 “ glass or other equivalent transparent substance prepared as
 “ described and used together by superposition or in succes-
 “ sion.”

[Printed, *4d.* No Drawings.]

A.D. 1862, June 25.—N^o 1871.

CLARK, WILLIAM. — (*A communication from Gustave Jeanne Julien.*)—“ An improved frame for holding photographic pictures.”

The “portable sliding frame” consists “of grooved bars in
 “ which the pictures slide, and are held in position,” thus the
 inventor is “enabled to combine in one frame of variable dimen-
 “ sions, which may be of any desired form or ornamentation any
 “ number of photographic pictures.”

The drawings show an arrangement for holding three pictures,
 a second frame for holding five pictures, and a third frame for
 holding a still greater number of pictures.

“ The facility for producing these combinations consists in the
 “ arrangement of parallel bars forming the frame or holder, which
 “ may be made of greater or less length, and placed at various
 “ distances apart in any number of rows in such manner that the
 “ whole shall present an artistic appearance.”

The horizontal bars of the arrangement are grooved, so that
 the pictures are held securely, and in the grooves the said pictures
 may slide easily. The horizontal bars are connected together by
 vertical bars placed behind, which have perforations or screw
ings at their upper ends to facilitate their suspension in any

desired position. In cases where all the pictures may not be of the same size, the horizontal bars are furnished with a thumbscrew, and nut sliding in a slot in the vertical bars, "whereby pictures may be fixed in any desired position."

[Printed, &c. Drawing.]

A.D. 1862, June 27.—N^o 1888.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Jean Théodore Dupuy.*)—"A method or methods of preparing "paper for the reception of photographic pictures or impressions, "in order that the said pictures or impressions may be transferred to and fixed on wood, porcelain, and other surfaces."

The sized paper is covered with a solution of ammoniacal citrate of iron and bichromate of ammonium and dried in a dark room; it is then submitted to light and damped; the dampness condenses only on those parts which have been shaded from the light. The impression is developed in a solution of iron and fixed by hyposulphite of soda and cyanide of potassium, it is then washed and placed on gummed paper, coloured with a vegetable or mineral colour, and varnished.

To transfer a paper photograph to any desired object, it is coated with a thin coating of transfer varnish, placed with its prepared side next to the object, covered with damp cloth, and rubbed evenly with a paper knife. The cloth is then raised, the paper is wetted with water, and when it (the paper) is peeled off, the photographic print will be found to be transferred to the surface on which it was placed. The print is then washed, dried, and varnished.

Other sizing materials, sensitizing agents, and varnishes, besides those mentioned above, are alluded to.

[Printed, &c. No Drawings.]

A.D. 1862, July 4.—N^o 1944.

RUSSELL, SAMUEL.—(*Provisional protection only.*)—"Improvements in stereoscopes."

The stereoscopes made according to this invention are in the form of a box, "so that the interior of the instrument is conveniently used as a case to contain pictures." "Against the front of the box and within it a mirror is fixed and the lenses or eye pieces are mounted in apertures in the lower part of the back.

“thereof, and they are inclined so as to be directed nearly towards the horizontal centre line of the mirror. The picture to be viewed is placed on a ledge at the back of the interior of the case, and immediately over and close to the eye pieces, and it is inclined somewhat so as to bring the reflected picture perpendicular to or at right angles with the line of sight, and to accomplish which, by my arrangement, the picture need not form an angle of more than 16 or 17 degrees with the mirror. The light falls directly on the picture entering at the open top of the case, and to admit more light to the picture I make the portion of the front of the case over the mirror, together with a small portion of each of the sides, to turn back on hinges, and this piece, when turned back, also serves to support the picture, its upper edge resting against it.” To give a tinted appearance to the pictures, the mirror or lenses may be made of coloured glass, or pieces of coloured glass may be placed in the eye pieces; “it is convenient to place a disc carrying it may be five or other number of pieces in front of each of the eye pieces, so that by rotating the discs either of the colors may be brought opposite the eye pieces, either the same colors may be brought opposite each eye piece, or one eye piece may have one color brought opposite to it, and the other another color.”

[Printed, 4d. No Drawings.]

A.D. 1862, July 8.—N° 1962.

GRUNER, CARL BERNHARD.—“Improvements in photographic apparatus.”

By means of this apparatus the “dark chamber can be entirely dispensed with, and the operations of preparing the plates and of developing, strengthening, and fixing the image after exposure in the camera, as well as that of washing the plate, can be carried on in broad daylight.”

“If the apparatus is to be detached from the camera it may consist of as many double boxes as there are solutions or fluids to be employed;” each box in its lower part contains the dipping bath, the upper part receiving the plate in its slide. To prevent the action of light from affecting the various operations, a slide divides the upper from the lower box, and the boxes may be made of yellow glass.

The drawings show an apparatus made so as to form a part of the camera. The body of the camera contains the ordinary

adjustable sliding box, which has, however, a projecting part reaching above the body of the camera and fitted with a door. The uprights of the slide box acts as guides to a counterbalanced cross bar that supports the plate frame. The dipping baths are, one after another, placed immediately under the plate frame, and a slide is removed when the plate has to be lowered into a bath. Whilst the plate is being sensitized the focussing screen may be introduced for setting the lens.

The process is applicable, with suitable modifications, to dry plates as well as to wet.

[Printed, 10d. Drawing.]

A.D. 1862, July 10.—N° 1988.

PONTI, JOSEPH.—(*A communication from Carlo Ponti.*)—(*Provisional protection only.*)—"An improved apparatus for viewing "photographic pictures, and the preparation of photographic "pictures to be used in such apparatus."

The apparatus resembles, in general form, that of a stereoscope, but it is of considerably larger dimensions, and is "provided with "only one large magnifying lens, and only one representation of "the picture" of large dimensions, the object of the invention being to present, by means of one lens, a magnified representation of the picture readily to both eyes of the observer, thus making the object appear of the natural size and with a certain amount of stereoscopic effect; a shade prevents the eyes from being affected by extraneous light. The instrument is placed in a horizontal position, and the end carrying the pictures is made to revolve, so as to bring its longest dimension either into a horizontal or into a vertical position at will. For pictures to be viewed by light reflected from their surfaces, two reflectors are provided; these are closed when transparent pictures are to be viewed, and the opaque end of the apparatus is let down, so that the light passes through the picture. The picture, when inserted, is caused to be slightly concave to suit the form of the lens. During the changing of the pictures, an opaque flap prevents the sudden accession of light from blinding the eyes.

The paper photograph that are to present day and night and other effects, are made so as to reflect the light and yet to be partially transparent. Tinted transparent surfaces are also used in

connection with the photograph, when it is viewed by transmitted light.

[Printed, 4d. No Drawings.]

A.D. 1862, September. 5—N° 2459.

JOHNSON, JOHN ROBERT, and HARRISON, JOHN ASHWORTH.—“Improvements in apparatus for taking photographic “panoramic pictures.”

In the curved-plate camera, the sensitive surface forms a part of a cylinder, and the panoramic picture is produced by rotating the instrument upon a vertical axis that passes through the centre of the lens, the sensitive surface being stationary. If the sensitive surface be flat, the panoramic picture is produced by making the plate or surface traverse in the opposite direction to the direction of rotation of the lens.

1st. The lens is in the centre of the camera when a flat plate is used, and rollers that support it are equally disposed round its centre of motion. The plate holder slides within the camera. It is preferred to mount a narrow box at the back of the lens holder to contain the plate holder and to allow of its motion.

2nd. The movement of the plate from the vertical axis is accomplished either by a toothed wheel and rack, or by means of cords and pulleys.

3rd. Adding a fly wheel to the gearing for working all forms of panoramic cameras.

4th. The adaptation of a spring or falling weight to give motion to such cameras.—A fly vane, the arms of which may be set at a varying angle, or a pendulum, may control the rate of motion; a piston working in a tube of water is also used.

5th. The exposure, in cameras moving at an invariable rate, is regulated by an expanding diaphragm which is placed near the lens.

6th. To regulate the form and dimensions of the aperture that admits light to the plate, two slips of sheet zinc, curved so as to admit of a suitable relative proportion of light to the sky and to the foreground respectively, are employed.

[Printed, 2s. Drawings.]

A.D. 1862, September 20.—N° 2579.

FORESTIER, PIERRE LOUIS.—“Improvements in photographic “albums.”

"Cartes or portraits are surrounded by a bevil edged border having the appearance of a frame, and ornamented in any suitable manner."

"To this end, I commence by cutting in thin cardboard or strong paper of the required dimensions an opening, corresponding with the outline of the proof to be framed, and ornamented or left plain at will. Over this first sheet I paste a second formed of cardboard, corresponding in thickness with the depth of bevil required, and having a centre opening somewhat larger than the first. Over this I apply a third sheet of thin card, with a smaller opening than the preceding provided with an ornamental border, from which the bevil is formed by pressure as in ordinary passe-partouts. Finally, I apply, when necessary, a fourth sheet formed of Bristol board or other paper, the opening of which precisely corresponds with the outline of the bevil edge, and which may be gaufered or otherwise ornamented at will. To form a double faced leaf, from each pair of single frames completed as above, I glue them back to back, after interposing at the centre two thicknesses of cardboard, which represent the space to be occupied by the photographic proofs. The slideway for the introduction of the proofs may be reserved at any suitable point, top, bottom, or side. The leaves, prepared as above, are bound into albums in the ordinary way, the form, dimensions, and decorative details being varied according to circumstances."

[Printed, 4d. No Drawings.]

A.D. 1862, September 20.—N° 2582.

DIXEY, LEWIS, and SMITH, GEORGE.—"A new or improved method of tinting, by lithographic printing, photographic portraits and backgrounds, and embossing the same."

A photographic print is obtained from a negative in which the background is blocked out with opaque paper, thus producing a white background in the print. Wherever it is desired to preserve the photograph from the tint about to be applied, in the usual manner from a lithographic stone, a piece of tracing paper is gummed upon the photograph with its outline suitably placed. When the tint has been printed on to the photograph and tracing paper, the tracing paper is removed with a damp sponge, leaving a photograph with an evenly tinted background. The tone of the photograph may, in some instances, be improved by printing

" attached to the plunging frame to raise and lower it into and out of the baths."

[Printed, 4d. No Drawings.]

A.D. 1862, October 4.—N° 2642.

AMPHLET, SAMUEL.—(*Provisional protection only.*)—" An improvement or improvements in ornamenting surfaces of wood."

" My invention consists in ornamenting surfaces of wood by mounting directly thereon photographs of objects from which the background has been cut away, the surface of the wood on which the said photographs are mounted constituting the background to the said photographs. Or the said photographs may be mounted upon plain, colored, or ornamented paper or fabric secured to the middle or other part of the surface of wood to be ornamented, the size of the said paper or fabric being larger than that of the photograph to be mounted thereon, and having any desired figure, but leaving part of the surface of the wood exposed. The photographs I prefer to use are photographic portraits, or groups, or photographs of sculpture or statuary, or other detached object or objects, the background of which has been cut away. I use positive photographs taken on paper or other flexible material, and I attach the photographs to the surface of the wood or the background on the surface of the wood by paste or size, or other adhesive material. The photographs are then sized and varnished, and may afterwards be polished in the manner commonly employed in finishing surfaces ornamented with tartan or Scotch plaid patterns. The surfaces of wood which, among others, I ornament according to my invention are surfaces of plane tree or sycamore, satin wood, maple, walnut, and mahogany."

[Printed, 4d. No Drawings.]

A.D. 1862, October 20.—N° 2820.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from François Louis Marquier.*)—(*Provisional protection only.*)—" Improvements in transferring designs and prints produced by photography to stone or zinc."

A grained lithographic stone is treated with a composition containing " water bi-chromatized to saturation " and a " thick solution of gum arabic." The face of a glass positive is then

applied, in contact with the stone, and the arrangement is exposed to the action of light. The inventor then raises the positive, and throws "on the stone a solution of potass, for the purpose of destroying the coat of bi-chromatized gum in those parts protected from the action of light, and to form a slight engraving; in about a minute or more I incline the stone and allow it to drain, then place it flat, and pass over it a sponge containing some such fatty matter as soapsuds, which I cause to enter into the engraving produced by the solution of potass, I next wipe the surface with a soft linen or other rag, and when dry I gum the stone, as in the ordinary lithographic process, after it has been acidulated, I leave the stone to rest for about a quarter of an hour, and then, inclining it, wash it with plenty of clear water and allow it to drain, I again gum it and place it on a lithographic press, allow about a quarter of an hour or more to elapse, and then ink the stone and proceed to print as in the ordinary process."

[Printed, 4*l*. No Drawings.]

A.D. 1862, October 25.—N^o 2882.

BOURQUIN, JOHN PETER.—(*Provisional protection only.*)—

"An improved manufacture of mount for photographic and other albums, miniatures, and other pictures."

"The object of this invention is to manufacture mounts that will not soil with the touch, and which when dirty may be readily cleaned without injury thereto; this I propose to effect by substituting veneers of choice woods for the cardboard facings of mounts, which veneer facings will admit of being French polished, and of receiving various kinds of ornamentation. In making album mounts I first back leaves of veneer with paper or cloth, and then cut out the openings for the pictures; I next place two leaves back to back, so that the openings in each shall correspond, and apply cardboard filling at certain parts so as to leave space between the leaves of veneer for the insertion of the photographic or other pictures, as is well understood; then by glue or other cement applied to the filling pieces and leaves where in contact therewith I connect the leaves of veneer together. When preparing mounts for passe-partouts and miniatures as well as albums mounts, I propose to ornament the mounts either by gilding, painting, or printing, preferring to

" apply mosaic printing which I have already adapted to the ornamentation of book and album covers."

[Printed, 4d. No Drawings.]

A.D. 1862, October 28.—N^o 2906.

SUTTON, THOMAS.—"Improvements in preparing albumenized paper for photographic purposes."

" In the ordinary method of preparing albumenized paper for photographic printing purposes, the sheet of paper is floated upon the surface of liquid albumen, but without having undergone any previous preparation, in order to render it impervious to liquids; the albumen therefore soaks into it more or less according to the nature of the common sizing which it contains. Moreover, in the subsequent operations of printing, the various solutions employed penetrate the paper in the same way. The prints are therefore less vigorous and brilliant, and also less permanent, than if the albumen had been applied to the surface only or to a sheet of paper which had been previously rendered impervious to liquids by the application of some waterproof sizing. In order to remedy this defect it is proposed, according to this invention, to prepare the paper before albumenizing it, by soaking it in a solution of india-rubber or gutta-percha, in benzole, or any of the other suitable solvents of these substances, for example, chloroform, kerosolene, or bisulphide of carbon. A very good solution for the purpose consists of five grains of india-rubber dissolved in one ounce of benzole. After the paper has been immersed in this solution and dried, it is to be albumenized in the usual manner."

[Printed, 4d. No Drawings.]

A.D. 1862, November 5.—N^o 2997.

NEWTON, ALFRED VINCENT.—(*A communication from Paul Scholze and Frederick William Billing.*)—"A new process of obtaining printing surfaces, dies, and substitutes for photographic negatives."

The objects of this invention are :—

1st. "To procure a cheap substitute for wood engraving," from which to obtain electrotpe printing surfaces.

2nd. To make easy the process of etching metal surfaces.

3rd. To obtain an easy mode of making dies for seals.

4th. To obtain by drawing, "substitutes for photographic negatives, which may be printed from in the same manner as those negatives by the action of light acting through them upon sensitive paper."

The principal feature of the invention consists in, first, making a drawing in ink, which is soluble in water, upon a hard surface which has been previously coated with an alcoholic solution of shellac, then covering the whole surface with thin varnish; the plate is then acted upon by water, so as to wash off the latter coating only from the lines of the drawing, the ink of the drawing being itself washed away. The plate, in this condition, can be used for the above purposes.

To carry out the 4th part of the invention, a surface of finely-ground glass is used, the thin varnish consists of beeswax, asphalt, rosin, and lampblack, and when the ink is removed, the dry surface is dusted over with lampblack and varnished. The plate thus prepared "is used for printing upon prepared paper in the same manner as a photographic negative obtained by the camera."

[Printed, *ad.* No Drawings.]

A.D. 1862, November 7.—N^o 3009.

MENNONS, MARC ANTOINE FRANÇOIS. — (*A communication from Eugène Marie Mathieu Plessy.*) — (*Provisional protection only.*) — "Improvements in the manufacture of paper."

1st. "The addition to paper pulps of albumen, gluten, serum, or other analogous substances coagulable by heat."

2nd. "The application to the surface of the manufactured paper of one of these substances, either alone or in combination with coloured or colourless powders."

"The object of these processes is to produce a glazed paper or cardboard for general printing and photographic purposes, applicable in certain cases as paper hangings, which being thus coated with a transparent and insoluble matter, may be readily washed or otherwise cleaned at will. The albuminous matter is incorporated with the pulp by any convenient means, the remaining processes of manufacture being carried out in the usual way. The coating of the manufactured paper may be effected either by immersion in a bath of the albuminous matter, or by simple brushing of the latter over the surface. The paper thus treated is then dried and glazed in the ordinary manner."

"In the manufacture of paper hangings the albuminous matter may be applied either by immersion, as above, or by means of rollers operated by suitable machinery, the coagulation being afterwards effected by steam, alcohol, or other appropriate re-agents."

[Printed, &c. No Drawings.]

A.D. 1862, November 14.—N° 3071.

CASSAIGNES, VICTOR JULIEN.—(*Provisional protection only.*)
—"Improvements in stereoscopes."

"This invention has for its object the giving to the foreground and background of a stereoscopic picture, when viewed through the instrument, a natural and pleasing gradation of tints. For this purpose I color the prisms or lenses of the instrument at the lower parts, or those parts through which the foreground of the picture is viewed with a tint suitable for the foreground, I prefer a yellow or golden color; and the upper parts of the prisms or lenses, or those parts through which the background and sky of the picture is viewed, I color with a tint suitable for the background and sky; I prefer blue for these parts. These colors in passing from the bottom to the top of the prisms or lenses I shade off the one into the other, in a regular gradation of tints." A very good effect may be obtained by tinting either the tops or bottoms of the lenses only; one part of the stereoscopic image will thus "preserve its own proper tint, whilst the other part will take the color given to it. In place of applying the tints to the lenses, a tinted glass may be interposed between the picture and the eye, either over or under the prisms or lenses, the glass being, as already described, so colored that the fore and the background of a picture viewed through the instrument shall appear with appropriate and different tints. Or for glass tinted as above described strips of stained glass may be substituted."

"This improvement can be applied to all sorts of stereoscopes; and I name chromo-stereoscopes all stereoscopes provided with it."

[Printed, &c. No Drawings.]

A.D. 1862, November 20.—N° 3119.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Joseph Corradi.*)—(*Provisional protection only.*)—"A method of

" and apparatus for indicating and recording the course of ships and vessels."

" This invention consists in recording upon paper the actual course run by a ship by the combined agency of photography with natural or artificial light, the compass, and clockwork. The apparatus is called by the inventor a 'Loxodograph.' In the binnacle, under the compass, clockwork is fitted for the purpose of unwinding paper sensitized in any manner followed in sensitizing paper for the photographic process from a roll, and of winding it on another roll. The rolls are placed on opposite sides of the binnacle, and the paper is drawn horizontally across and under the compass. A small object is placed upon the disc of the compass, say, at the north pole, throwing down or projecting a very intense luminous point upon the sensitized paper. The effect produced is this, that if the ship proceeds, for example, in a straight line from north to south, the luminous point will also trace on the paper a straight line from north to south, and so on for all changes in the ship's course. Should a ship be compelled to turn round, the luminous point will trace an elliptical figure. The action is infallible, as the paper turns with the ship, while the object remains stationary under the influence of the north pole. The speed at which the paper is made to travel being known, it becomes easy to ascertain exactly how long a ship has run on such and such a tack."

[Printed, 4d. No Drawings.]

A.D. 1862, December 1.—N° 3222.

JOHNSON, EDWARD DANIEL. — "Improvements in pocket watches."

1st. Constructing "a watch which will indicate the time in the dark by the touch."

2nd. "An improved mode of making black dials." This improvement is not mentioned in the Final Specification.

3rd. Obtaining "photographic seconds." "This is a temporarily operating seconds hand for the use of the photographer, who requires a seconds hand fixed at zero but ready to move forward various numbers of seconds but to be found always at zero unless in use," A wheel or "circular rack" is loosely mounted on the ordinary seconds pivot, and carries a hair spring, the end of which is fixed to the plate of the watch, "thus the wheel on being turned round bends up the spring which

" returns the wheel to its original position when released." A pinion engages both fourth or seconds wheels, its pivot "next" the secondary fourth wheel being mounted in a bar moving on " a stud to and from the said secondary fourth wheel. This bar " is acted upon by a spring that keeps it out, thus when not in " action the spring detaches the pinion from the secondary while " it remains in gear with the primary seconds wheel. A small " stud is passed through the watch case and when pressed upon " moves the bar forward and makes connection with the second " wheel, which then starts and moves forward carrying the " seconds hand."

This improvement is called the 2nd improvement in the Final Specification.

[Printed, 186. Drawing.]

A.D. 1862, December 3.-- No 3247.

EDEN, ALFRED FREDERICK.—"Improvements in apparatus for " taking minute photographic pictures and magnified pictures of " microscopic objects."

1st. "Adapting to the object end of the camera a small re-
" moveable box or dark chamber in which is placed the glass
" plate with the sensitive surface when it is desired to obtain a
" minute photographic picture. In order to obtain an enlarged
" or magnified picture of a microscopic object the latter is placed
" in the small removeable dark chamber, and light is admitted
" through a proper aperture and allowed to pass through the
" object and also through an arrangement of lenses, which will
" throw the magnified image on to a sensitive surface placed at
" the proper focal length behind."

2nd. In taking micro-photographs, a stop with an aperture of less than one-fiftieth of an inch is placed behind the lens and in front of the negative.

3rd. "Adapting to the object end of the camera a focussing
" lens, which is screwed on to the small removeable box or dark
" chamber, and is adjusted by means of a sliding tube. This
" lens is only used for focussing when it is desired to produce
" micro-photographs, but it will also serve as a condensing
" lens for throwing light on the object when the apparatus is
" employed for taking photographic pictures of microscopic
" objects."

" will dissolve gum copal, damar, mastic, lac, or other gums, and
 " will form an improved varnish, the natural texture of the gums
 " not being destroyed by fusion, which is not necessary. The
 " varnishes will be elastic and capable of receiving any amount of
 " polish, they will also be especially applicable to photographs."

[Printed, *4d.* No Drawings.]

A.D. 1862, December 23.—N° 3429.

RUSSELL, SAMUEL.—"Improvements in stereoscopes."

The instrument is in the form of a box, and, when out of use, contains the stereoscopic pictures. A cover or covers closes or close the apparatus, and against one side mirrors are fixed. "The stereoscopic pictures or slides are, when about to be observed, placed in suitable grooves or holders opposite the mirrors, and on the side where the lenses or eye-pieces are applied they are held in a position inclined to the plane of the lenses and also to the plane of the mirrors;" the light thus falls directly upon the pictures. In some cases the box is made "in two similar parts, and each part, when separated from the other, becomes a stereoscope." Sometimes a stereoscope, fitted as described above, is arranged with both top and bottom open, and a handle with spring arms is added, so that the instrument "can be turned as on an axis between the ends of the two arms," concave cups being applied "to the outer ends of the arms and convex projections to the ends of the instrument."

To determine the respective angles of the prisms, the picture, and the reflectors:—The distance of the image which is to be produced is marked opposite and parallel to the eye piece. The lower edge of the picture is then placed immediately over the prism, this point and the bottom of the image already drawn is joined by a line, and a perpendicular is raised to the said line, at its bisection. The reflector is placed in the perpendicular, and "the line of the image" being produced upwards so as to cut the perpendicular, will give a point which, if joined by a straight line to the bottom of the picture, determines the position of the picture.

Modifications of the above are set forth.

[Printed, *8d.* Drawing.]

1863.

A.D. 1863, January 21.—N° 185.

CLARK, WILLIAM.—(*A communication from Adolphe Teissonnière.*)
 —“Improvements in preparing and obtaining photogenic pictures
 “or representations.”

A positive image is obtained “direct from a positive by the use
 “of ammoniacal salts combined with the organic matter,” and by
 throwing down black precipitates from certain metallic solutions.
 When tannate of iron is precipitated from a solution of sulphate
 of iron, by means of tannic acid, a positive impression is obtained
 in common black ink.

“A sheet of paper, albumenized with chloride of sodium or
 “hydrochlorate of ammonia,” is sensitized by means of “bichro-
 “mate of potash (or other ammoniacal salt),” exposed to the action
 of light, immersed in water, and its whole surface treated with
 the precipitant. The excess of the precipitant is then removed by
 means of water, and the “proof” is plunged into a bath of the
 metallic solution. When the image has acquired a certain dis-
 tinctness, the “proof” is washed, dried, and coated “with white
 “varnish dissolved in alcohol.”

The principle upon which the process is based is as follows :—
 The “bichromate of potash or bichromate of ammonia,” when
 combined with organic matter, becomes insoluble under actinic
 influence, the parts of the paper which are unaffected by actinic
 force remaining soluble. The soluble parts, on being washed,
 “give up the substance and leave the paper exposed in its pri-
 “mitive condition.” When the precipitant is applied, the “chlo-
 “ride of sodium or hydrochlorate of ammonia” acts “as a mor-
 “dant in the formation of peroxide of iron,” and only those parts
 which have been unaffected by actinism absorb the precipitant,
 and become black by immersion in the metallic solution.

The sensitizing solution is applied, by means of a sponge, on to
 the sheet of albumenized paper.

[Printed, &c. No Drawings.]

A.D. 1863, January 28.—N° 256.

CLARK, WILLIAM.—(*A communication from François Willème.*)
 —“Improvements in the means and apparatus for copying and
 “reproducing sculpture and other objects of art.”

This invention relates to "photo-sculpture," in which photography is employed in connection with the photograph. This process enables sculpture to be produced of any size, from either a living or inert subject.

The model is placed "on the centre of a ring furnished with "object glasses" or photographic cameras, "placed at equal "distances apart, at the same height." Of the series of photographs thus obtained, two are taken that represent views of the model at right angles one to the other, and on these views two pantographs are employed to act upon the material to be sculptured, one pantograph acting in a plane at right angles to the plane in which the other pantograph delineates. When the said two photographs have yielded their contour to the solid figure, by means of the pantographs, the two next photographs, at right angles to one another, in the series are taken, and so on, until the whole of the photographs have been similarly employed. The figure is revolved, in the requisite degree, by means of a suitably divided platform, between each application of the pantograph.

To obtain bas-reliefs the cameras form a semicircle.

The photographs are contracted or extended, by means of india-rubber, in order to produce sculpture in caricature.

The photographs may be enlarged by means of a solar microscope.

Thin strips of wood, &c., may be used in conjunction with a plastic material, to give the requisite sections of the model and thus to produce mechanical sculpture.

When one pantograph only is used, the platform has a backward and forward as well as a rotating motion.

[Printed, 1s. 2d. Drawings.]

A.D. 1863, January 29.—N^o 267.

POUNCY, JOHN.—"Improvements in obtaining, transferring, "and printing from photographic pictures or images, also in "preparing materials for the same."

This invention consists in the employment of a sensitive ink, which may be transferred or printed from. The surfaces used for the reception of the pictures "may be paper, silk, linen, cotton, "or mixed fabrics, leather, wood, ivory, glass, porcelain, or stone, "or surfaces of metal or metallic alloys," or any other suitable surface. The ink or composition employed to coat the surface *selected consists of colouring matter, "fat, tallow, or oil, bichro-*

"mate of potash, or bitumen of Judaea, or both of such last-mentioned substances, and benzole, turpentine, or other hydrocarbon or analogous solvent;" these ingredients are used in suitable proportions.

When the photograph is to be transferred on to a printing surface, a larger quantity of fatty matter is used in the preparation of the ink than when the picture is not to be transferred from the surface on which it is taken.

To produce a positive photograph by means of a negative picture, the negative is placed on the uncoated surface of a transparent material prepared as described above; the parts not acted on by light, remaining soluble, are dissolved off with benzole or other solvent. The picture is left in printing ink.

The pictures obtained as described may be transferred to a porcelain surface and "burnt in."

When a lithographic stone is the surface operated upon, it must be "grained" before the application of the ink, "and the surface" of the coating should be also 'grained' after it has been laid "on the surface of the stone."

[Printed, &c. No Drawings.]

A.D. 1863, January 31.—No 286.

BENNETT, THOMAS.—"Improved arrangements for obtaining pictorial backgrounds, foregrounds, and perspectives when taking photographic portraits or sun pictures."

"In taking photographic portraits or pictures in which it is desired to adopt suitable backgrounds, foregrounds, or perspectives, it has been hitherto the practice to use a painted canvas descending to, and terminating at the floor or standing place of the apartment or place. Now, according to my invention, I use a canvas (or equivalent substance)" suspended upon a roller, "with pulleys and cords," by which the canvas can be raised or lowered, the said canvas "being always of sufficient length to allow it to be brought down to the floor, then stretched along the same, and kept in position (if desired) by catches or grippers, so that the person or persons, or principal object or objects to be portrayed may stand upon a part of the canvas." The background, "which is to remain perpendicular," is to be painted in the ordinary manner, and that part of the canvas "which is to lay upon the floor is to be painted so as to have the

“ same concurrent effect as the upright part, and so as imperceptibly to ‘run into’ the same, for which purpose I have hitherto adopted the plan of first painting the upright part, and fitting the same to a corresponding position to that in which the same is intended to be used, and then stretching the horizontal part upon the floor, drawing lines or objects by the aid of camera.”

The arrangements have to be varied for landscapes, in this case the perpendicular part being “continued in the horizontal part with a curve,” and not with an angle as is the case with interiors.”

[Printed, 8d. Drawing.]

A.D. 1863, February 11.—N^o 376.

BROOMAN, RICHARD ARCHIBALD. — (*A communication from Jean Jacques Leopold Rousseau de Lefarge.*)—“Improvements in photographic apparatus.”

“This apparatus enables the manipulator to operate in full light upon damp collodion to sensitize the glass, and to finish the proof in the light. The apparatus does not alter the negative now used, but it serves as an auxiliary to it. In the apparatus the following characteristic elements are combined:—The employment of two vertical and independent bath vessels arranged to allow of the glasses being easily plunged therein; one vessel, containing the bath of silver for sensitizing the damp collodion, may be of gutta percha, hardened rubber, or other material having no action on the bath; the other containing the iron bath for developing the picture, should be of yellow or orange colored glass; if made of any other material it should be lined with yellow colored glass. There is a frame for holding the glasses to be exposed capable of being opened and closed at bottom by withdrawing or inserting a sliding bar. There is a second frame for holding the collodionized glass in the former frame, which second frame is styled the plunging frame, because it is used for introducing the glass into the bath vessels entering also with it, it is insulated from the first frame, and may be passed through it. A piece of catgut is attached to the plunging frame to raise and lower it into and out of the baths.”

[Printed, 8d. Drawing.]

A.D. 1863, February 21.—N° 478.

CEILEUR, ALBERT.—(*Provisional protection only.*)—"Improvements in apparatus for taking photographic impressions or likenesses by means of the camera."

These improvements "consist of an arrangement of parts for holding the negative plate in camera obscuras while taking the impression therein by means of the lens in such manner that the plate can be moved laterally and also vertically for the purpose of changing its position and presenting a new surface to receive an impression."

For the above-mentioned purpose, a plate holder is arranged with a series of divisions having suitable holes to form catches at regular intervals according to the size of the impression to be taken." Slides and stops are employed to traverse and fix the slide holder in a horizontal or a vertical direction, so as to suitably adjust the position of the impression.

"The opening of the plate carrier to the dark chamber is arranged according to the size of the impressions to be produced, while the movements of the plate holder must be regulated to shift accordingly. The plate holder is made of a size and arranged for a number commensurate with the size of the impressions to be taken and convenience of operation, as for instance, for small impressions the plate holder may be arranged for a hundred or more impressions on the same plate without removing it from the plate holder, while for large impressions two dozen may be a convenient limit.

"Instead of or in addition to the plate holder sliding up and down," the lens or lenses may be mounted on a vertical slide, and the camera may contain two or more dark chambers, "so that the lenses may be moved to a position opposite a part of the negative plate and unoccupied by impressions previously taken, and the plate holder then traversed in its transverse slide so as to produce another horizontal row of impressions on the plate."

[Printed, 4d. No Drawings.]

A.D. 1863, March 2.—N° 586.

CLARK, WILLIAM.—(*A communication from Alphonse Louis Poitevin.*)—(*Provisional protection only.*)—"Improvements in preparing and obtaining photographic impressions and in the application of such impressions."

In this invention a positive image may be produced from a positive.

1st. Obtaining permanent images on paper.—The surface is sensitized by means of a mixture of perchloride of iron and tartaric acid, the impression is produced through a positive, and a developing bath of caseine or albumen is used; when the photograph is plunged into the coagulating mixture of carbon or other inert colour, the image appears; the sheet is then washed, dried, treated with weak hydrochloric acid, again washed, and, finally, dried. If a negative be used to produce the impression, a developing bath of gelatine is employed. Thus plates either for relief or for copper-plate printing may be obtained.

2nd. Obtaining permanent positive photographs on paper, glass, or other surface.—A uniform layer of gelatine containing the colour is sensitized by means of a solution of perchloride of iron and tartaric acid. When the sensitive surface is dried, the organic matter is insoluble in water, and, in order to take proofs, the coloured coating is impressed by means of "a positive image (reversed)." The image is developed by plunging the sheet "into warm water, when all the parts which have received the action of light will dissolve." The sheet is then dried, washed in acidulated water, rinsed, and, finally, dried. The organic matter may also be fixed "either with alum, perchloride of mercury, tannin, or other body in solution." Ceramic manufactures may be ornamented, and printing surfaces, and surfaces in relief produced by means of this invention.

[Printed, 4d. No Drawings.]

A.D. 1863, March 17.—Nº 711.

BRIERLEY, JOHN HENRY, and GREENWOOD, BARZILLAI.
—(*Provisional protection not allowed.*)—"An album belt."

"Having cut a piece of leather or any other material to the requisite dimensions or size for a lady's or a boy's belt, we cut out pieces of the material and insert in the place from which the material has been cut any selection of photographs, say 'the royal family,' or any persons of distinction, and afterwards complete the manufacture of the belt in the usual manner; or having by means of a die and an embossing press embossed the belt at certain distances, we insert or attach the photo-

“graphs to the embossed portion of the belt by means of gum, paste, or glue, or any solution of the like nature.”

[Printed, *4d.* No Drawings.]

A.D. 1863, May 13.—N° 1204.

CASSAIGNES, VICTOR JULIEN.—“Improvements in stereoscopes.”

This invention “consists in colouring the prisms or lenses of stereoscopes, so that each prism or lens presents several different tints or colors, and so that consequently the pictures or images seen through these glasses will appear under different aspects, giving, for example, the effects of morning, of sunrise, or of moonlight. Thus, for example, to have the foreground of a golden color, the distance neutral, and the sky blue, the upper parts of the prisms or lenses should be colored blue and the lower parts yellow, and between the two there should be a gradual gradation of the two colors, the one passing into the other.”

Another arrangement consists in placing a flat glass, coloured as above described, over or under the ordinary lenses.

The coloured glasses or lenses may be either fixed or moveable.

The way preferred for colouring the said prisms, lenses or glasses is that set forth in No. 2618 (A.D. 1863), “that is to say I employ plano-convex prisms or lenses, and I paint on to their flat sides a cement (I prefer a resinous cement) colored with transparent colors to the tints required, and by means of the cement so applied I attach to the prism or lens a piece of flat glass which serves to cover and protect the painted surface.”

The above improved stereoscopes are called “chromo-stereoscopes.”

“In place of glass, other transparent substances capable of being colored may be employed, such as gelatine and others.”

[Printed, *4d.* No Drawings.]

A.D. 1863, June 9.—N° 1434.

MURRAY, JOHN.—(*Provisional protection only.*)—“Improvements in clips or holders for inserting and fixing photographic pictures in albums.”

“The clip holder or instrument according to my invention consists of two thin plates of metal or other material superposed and fixed one upon the other with a sufficient interval between to receive and hold loosely the photographic picture. These plates I form of considerable breadth, say of about half the whole breadth of the picture, and form them somewhat of a pointed spade-like form, the principal and lower one being longer than the other; I also thin them at the point so as to effect easy access in the slits of the album. The lower and main plate is extended to a convenient length to form a handle, and of a suitable shape. Instead of superposed plates this clip or holder may be made of one piece, and of ivory, or other suitable material; in either case suitably ornamented and finished. The great breadth of the clip gives considerable command over the photographic picture in inserting and placing or fixing it in position, while at same time the slight hold taken of it between the spade-like plates enables it to be freely withdrawn after adjusting the picture.”

[Printed, 4d. No Drawings.]

A.D. 1863, June 23.—N^o 1588.

TOOVEY, WILLIAM. — “Improvements in photolithography, photozincography, and photographic engraving on copper or steel plates, or on any other suitable substances.”

“To produce on a lithographic stone an impression suitable to be printed from.”—Sized paper, coated with a solution containing gum arabic and bichromate of potash, is exposed “to light behind a negative.” The sheet of prepared paper is placed face downwards on a lithographic stone previously arranged in a percussion press. Several sheets of damped paper are then placed on the stone over the photograph, and a heavy pressure is applied; such parts of the gum as are soluble are thus dissolved and attached to the surface of the stone, producing thereon a negative image. The stone is then dried, coated with greasy ink (the said ink being brought into contact with all the parts of the stone untouched by gum), the coating “removed by passing through the lithographic press, by spirits of turpentine, or otherwise,” and all the gum washed off. “The stone is then rolled in with ordinary printing ink, and the positive image appears *in black*; it is then printed as every lithographic drawing.”

In photo-zincography a zinc plate is substituted for a lithographic stone.

In photographic engraving on copper, &c., the operations are the same as those set forth above, except that a positive is used to impress the image. When the plate is dried, after the photograph has been detached, it (the plate) is varnished. When the varnish is dry, the gum is removed by means of water, and the plate is etched in the usual way; "wherever the plate is protected " from the varnish by the gum it will be attacked by the acid."

[Printed, 4d. No Drawings.]

A.D. 1863, July 10.—N° 1729.

BOURQUIN, JOHN PETER. — (*Provisional protection only.*)—"An improved construction of rolling press."

"The chief object of this invention is to improve the rolling
" presses used by photographers for glazing photographic paper
" and pictures. Hitherto the travelling table of such presses has
" been made with a surface of polished iron or steel, which,
" besides being expensive to manufacture, is liable to injury from
" rust and scratches. In my improved press I retain the steel
" pressing roll, but the travelling table I fit with a slab of polished
" glass, which will retain its smoothness for an indefinite time.
" In order however to prevent the fracture of the glass under
" the severe pressure of the pressing roller, I support the table
" upon rollers in such a manner that the glass will not be subject
" to a direct bite from the upper and under rollers. To this end
" I employ two rollers to carry the table, and mount them in such
" a position that a vertical line, drawn from the axis of the
" pressing roller, will cut about the middle of the space between
" the supporting rollers. This allows of a slight yielding of the
" glass to any excessive pressure of the upper roller, sufficient to
" prevent the fracture of the glass slab, without interfering with
" the glazing action of the press. The surface to be glazed will,
" of course, be laid in contact with the glass slab. This arrange-
" ment of glazing press is susceptible of extended use in the
" arts."

[Printed, 4d. No Drawings.]

A.D. 1863, August 15.—N° 2028.

LUDEKE, JOHANN ERNST FRIEDRICH. — (*Provisional protection only.*)—"Improvements in the means of keeping cameras or other
" apparatus steady when suspended to balloons."

My invention consists in keeping cameras or other apparatus steady when suspended to balloons at certain distances from the earth, which is effected by means of a peculiar arrangement of two or more ropes attached to the car of a balloon, so that when the balloon is waving about the camera will be kept comparatively steady."

One of the ropes has a weight attached, another rope is fastened to the ground at one end by any suitable contrivance," and then passes over a pulley to a roller or drum "for the purpose of raising and lowering the balloon, although other means for obtaining the same result may be employed in place of the roller. By this arrangement the camera will be kept steady and in its place." The camera "may be raised or lowered by means of a rope, and is opened and shut by suitable mechanism; or I can make use of a wire in connection with a battery for the same purpose. I do not restrict myself to the use of any precise number of ropes, as they may be varied if considered necessary."

[Printed, 8d. Drawing.]

A.D. 1863, August 19.—N° 2063.

BONELLI, GAETANO, and COOK, HENRY.—(*Provisional protection only.*)—"An improved mode of and apparatus for producing by the aid of photography optical illusions of moving animals and bodies."

1st. "Taking a series of representations by means of photography of men or animals with limbs in motion, and then arranging them round a disc, to which rapid rotary motion is communicated by suitable mechanism, so that by the different figures in the series being brought in rapid succession before the eye of the observer, the effect of figures in motion will be produced. In carrying out this part of the invention the figure or body in motion to be represented is photographed in a variety of positions, that is to say, supposing the effect of raising an arm or leg is to be produced the limb must first be represented in its lowest position, then slightly raised, then raised still higher, and so on, until the last figure represents it as raised to its fullest extent." "We prefer to produce these representations on a microscopic scale arranged in a circular series round a small glass or other disc, which may be mounted on a central spindle, and adapted to the optical apparatus which forms the next feature of the invention."

2nd. The said apparatus "consists of an ordinary compound microscope mounted in a brass or other tube, to which is adapted a spindle for carrying the figure disc at one end, and a perforated rotating eye-piece at the other. Rapid rotary motion is communicated to this spindle by means of a small winch provided with a screw wheel, which gears into and drives a snail or screw on the spindle. The figure disc is placed at the proper focal distance from the object glass, and the lens at the eye end is capable of adjustment in the ordinary manner."

[Printed, 4d. No Drawings.]

A.D. 1863, August 22.—N° 2083.

PEGRAM, THOMAS.—(*Provisional protection only*).—"A plate holder for the photographic camera adapted to carry different sized plates, each plate being on the same plane, and in the same focus."

"This invention consists in the use of two moveable slips of wood or other material or materials to carry different sized plates instead of the usual carriers. Two pieces of grooved wood, or other material or materials, are fitted into the camera back or dark slide, in the top and bottom, or in the sides, in which grooves two strips of wood or other material or materials are fitted, having the sides towards the centre curved or straight, or notched and rabbited, if notched they can either be rabbited or have wire attached. The strips move in the grooves, and can be drawn together or extended according to the size of the plate so as to receive the plate in the rabbits or on the wires as the case may be. The slips may be made to slide either by hand or by means of a left and right screw. If made to slide by hand a piece of elastic or a spring fixed on the top or at each end of each slip will hold the slips in position. A spring fixed upon the door of the dark slide, so as when the door is closed to press lightly upon the plates will keep them in focus."

[Printed, 4d. No Drawings.]

A.D. 1863, August 22.—N° 2085.

WATSON, ALFRED.—"An improved method of and apparatus for inserting pictures in and withdrawing them from photographic albums."

This invention "consists in forming and employing a cardboard or other suitable frame, in which the picture is first made to slide, or is placed in such manner that the edges of the picture or card carrying the picture are protected. This frame with its picture is then slidden in through an aperture in one of the sides or top and bottom of the compound leaf of the album. The thickening border usually employed between every two leaves is removed to allow of the frame and picture entering without making the compound leaf thicker than is allowed for by the thickening border."

The drawings show one of the frames in which "the picture is inserted at the top of the frame, the inner edges of the sides of which are slit or made double" "to receive the side edges of the picture. The frame with the picture is then slidden in through an aperture in the bottom of the compound leaf of the album." "I prefer to fill the blank frames in the leaves of the album with pieces of cardboard of the same size as the pictures, and which I remove before inserting the pictures. Each frame is capable of holding two pictures placed back to back."

[Printed, *sd.* Drawing.]

A.D. 1863, September 12.—N° 2252.

WHIPPLE, JOHN ADAMS.—"Improvements in apparatus for supporting photographic cameras."

This invention consists in applying spring mechanism to sustain the photographic camera; "in the employment of three supporting pillars, to each of which said spring mechanism may be applied; and in the use of india rubber rollers." The pillars are hollow, and rods work in them, the camera being attached to the upper ends of the rods. The bar, connecting the lower ends of the rods, works in grooves in the inner sides of the pillars. From each end of a bar connecting the pillars at their upper ends, bearing plates depend, for the fusee pulleys. Suitable cords, connecting the sliding rods with the fusees, and springs, fastened at one end to their respective pulley shafts, and at the other to the bearing plates, are used. Depressing the upper bar unwinds the cords, coils the springs, and lowers the camera. A spring, connected to toggle arms, is placed on the upper bar, and arrests the upward movement of the camera. "These arms are situated below the said cross bar. The opposite ends of the toggle arms work in the grooves cut on the inner side of

“ the supporting pillars, and are made to impinge the sliding camera rods by the action of the spring. When it is required to adjust the camera the toggle arms are withdrawn from the sliding rods by means of a hand lever operating against this spring.”

The object of this invention is to obtain “ an easy and quick adaptability of adjustment, and noiseless movement, so as to make the least possible jarring, and so as to readily catch the proper time of expression or pose of the subject.”

[Printed, *sd.* Drawing.]

A.D. 1863, September 24.—N° 2354.

HELSEBY, WILLIAM GEORGE.—“ Improvements in mounting or setting transparent photographic pictures.”

1st. “ Mounting or setting at the back and front, but preferably at the back only, of photographic pictures, taken on a so-called transparent substance or material ‘ vignette ’ coloured or shaded, or other coloured, shaded, or ornamented transparent or translucent sheets, or one sheet only, of glass or other material, to give to the pictures a mellow and artistic tone.”

2nd. “ Mounting or setting transparent photographic pictures arranged as above described, or transparent photographic pictures of any kind, in hinged or folding cases, somewhat similar in appearance to those at present employed, but having oval or other shaped openings in or through one or both of the sides or leaves thereof, so that such pictures when so mounted or set are in a conveniently portable and ornamental state.”

Two transparent sheets may be used, according to a modification of this invention, “ the vignette one being in front of that on which the picture is taken.”

Another modification consists in only using one transparent sheet, “ the picture being taken on a vignette coloured or other illuminated or shaded or ornamented sheet, and the picture side protected by varnish or other means.”

A thin sheet of paper or other suitable material, that may represent colour paint, may be placed between the front and middle plates of glass, and either before or behind the photograph. “ The edges of such sheet may be plain, pectinated, or of any other ornamental form, and may have any desired figure or design thereon.”

[Printed, *sd.* Drawing.]

P.H.

A.D. 1863, October 23.—N° 2618.

CASSAIGNES, VICTOR JULIEN.—(*Provisional protection only.*) —“Improvements in the manufacture of the prisms, lenses, and glasses of stereoscopes, and in ornamenting glass.”

The tinted prisms described in No. 1204 (A.D. 1863) are, according to this invention, produced by applying to the flat surface of the prism transparent cement of different colours, laid on so as to produce the required gradation of tints. “The cement colors being thus laid on I place a flat glass over them, and this by the cement becomes attached to the prism or lens and serves to protect the painted surface from injury. Or the prisms or lenses may be made each in two or more parts, as in forming an achromatic combination, and in place of cementing the parts together with colorless cement, as now practiced, one part is tinted with graduated colors, as above described, and the other part is then attached to the first by the cement so applied. Flat plates of tinted glass and glasses of other forms I make for use in stereoscopes in a similar manner.

“In some cases I obtain the gradation of tint by varying the thickness of the layer of cement, thus, if two surfaces are put together with a colored cement between them, and the surfaces be pressed together more nearly into contact on one side than the other, a regular gradation of color will be obtained, the color increasing in intensity with the thickness of the layer of cement.”

In ornamenting glass, the ornament is painted on the glass in transparent cement colors, and, by the cement so applied, a second sheet of plain glass is fixed to the first. Resinous cements are preferred.

[Printed, 4d. No Drawings.]

A.D. 1863, November 24.—N° 2954.

DAVIES, GEORGE.—(*A communication from Mathieu Risler, the younger.*)—(*Provisional protection only.*) —“Improvements in photography.”

The squares of glass used to obtain collodion negative proofs being “fragile, heavy, and expensive,” are replaced by talc or mica in sheets. “The improvement then forming the subject of the present invention is characterized by the employment of talc or mica in sheets as a substitute for the glass, such sheets

“ being prepared in the following manner :—A sheet of talc or mica is to be cut of a corresponding size to the dimension of the negative which it is desired to produce, and fixed on a piece of ordinary glass by smearing the edges with a thick gum, the talc is then to be cleaned simply by a tuft of carded cotton-wool, the collodion is then poured on the surface, over which it flows freely. The other operations of sensitizing, developing, washing, and fixing are effected in the usual manner, and by means of the ordinary accessories. When the negative is finished it is only requisite to remove the talc from the glass, and to place it in contact with the prepared paper to obtain the positive proof. The advantages resulting from this substitution of talc or mica for ordinary glass will be readily perceived from the previous explanation, in fact these sheets are better suited to all the manipulations, not only from their lightness, but also from the small space which they occupy, and also from their non-liability to fracture.”

[Printed, &c. No Drawings.]

A.D. 1863, December 8.—N^o 3089.

DESIGNES, PETER HUBERT.—“ Improvements in apparatus for exhibiting dissolving views.”

“ My invention consists in constructing an apparatus which I may term a double stereoscope with screens for admitting and excluding light when and as it may be necessary, and with two holders for containing the stereoscopic or other pictures or objects to be viewed. In addition to the ordinary glasses I employ a diaphanous reflector placed at an angle to those glasses in such manner that when one screen is raised to admit light, the picture in a line with the ordinary glasses shall be viewed, then, upon gradually closing that screen and opening the other, the picture first seen gradually fades away or dissolves, while another picture gradually appears in its place, and so on alternating for any given number.”

The apparatus consists of “ two boxes or cases similar to that of an ordinary stereoscopic,” placed at right angles to one another, one carrying the ordinary lenses and partition, and having the picture placed in the line of direct vision, the other without lenses, but meeting the first box in such a manner that the diaphanous reflector reflects the picture to the eye as if it were

placed in the position of the picture in the first box, when the shutter of the first box is shut, and that of the second box open. Buttons, in connection with rods, levers, and springs, are used "to drive out or remove the views or slides." A hood is used to exclude false light from the eyes of the observer. In this arrangement the reflected view is placed downwards; in another arrangement the reflected view is placed upwards.

[Printed, 10*d*. Drawing.]

A.D. 1863, December 17.—N° 3187.

JEFFREYS, CHARLES.—(*Provisional protection only*).—"Improvements in jewel, photograph, instrument, and other cases."

"My improvements in jewel, photograph, instrument, and other like cases for holding fancy and other goods, consist in the application of a spring thereto to throw up the lid or cover when it is unlocked or the snap released. For light leather goods such as jewellery cases, I find a small piece of watch spring answers the purpose, which I simply place within the lining and the body of the case, carrying the double or middle part of it round outside the hinge, the one end terminating in the lower part of the case, and the other in the cover wherein they are properly secured. The spring is enclosed and hidden from view by the lining and covering of the case. Springs may be otherwise applied to answer a like purpose, for instance, it may be a spiral or other spring, and act on the hinge with like effect, or it may be a spring compressed between the cover and the lower part of the case, in closing which again throws it up when released. In all cases the spring is put in tension by the closing of the case."

[Printed, 4*d*. No Drawings.]

1864.

A.D. 1864, February 1.—N° 270.

ROWSELL, CHARLES JOHN.—(*Provisional protection only*).—"Improvements in apparatus for viewing photographic and other

"pictures, coins, and medals, which is also applicable in the production of drawings and paintings."

This apparatus consists of an easel for viewing the above-mentioned objects "by the aid of a magnifying glass." Boards are "hinged together at one end, the lower one forming the base, " while the other may be raised at one end, and inclined at any " angle." "Towards the lower end " of the inclined board a rest is mounted and hinged, against which the objects to be viewed are placed; at the higher end is mounted a hinged transverse bar, on which a magnifying glass is placed. "The object of hinging " these pieces is to fold them down flat." To view single pictures a large magnifying glass is used, "through which a person can " look with both eyes." "With this apparatus a person desiring " to view the picture places it on its rest, raises or lowers the " inclined board to suit his convenience, and in looking through " the glass regulates the position of the picture to the focus best " adapted to his sight by moving it toward or further from his " magnifying glass. The same apparatus I adapt for viewing " stereoscopic pictures." "To the inclined board I hinge a thin " black partition piece, disposed at right angles to the plane of " the pictures or glasses," and "hinged, so as to be laid down " flat when viewing single pictures," but the partition "is raised " in a vertical position for stereoscopic pictures, and I substitute " double eye glasses in lieu of the single one before mentioned, " when the apparatus becomes in fact an open stereoscope."

[Printed, &c. No Drawing.]

A.D. 1864, February 5.—N° 305.

LEE, JOSEPH, and THOMSON, JAMES.—(*Partly a communication from Malcolm Mouat.*)—"Improvements in mounting " photographic and other pictures."

"The object of this invention is so to mount or combine pictures " that softness of tone and agreeable depth " shall be produced.

Two pictures of the same subject are used "to produce or make " one picture. We mount or place one immediately over or in " front of the other so that the characteristics of both pictures " are blended together, the front picture being in all cases of a " semi-transparent character." "The back picture may in some " instances have only some of the outlines of the front picture, " and such back picture to produce artistic effect might be " variously shaded, coloured, or tinted."

To adapt these improvements to photographs, an ordinary photograph is suitably tinted for the back picture; the front picture is taken on transparent paper and placed "over or in front of the back picture either in immediate contact therewith, or, which we prefer, a short distance therefrom. When the front picture is to be kept a short distance from the back one we have found it convenient to attach the front picture to the back of a sheet of glass by a transparent varnish and to place a separating piece between the front and back pictures round the edges thereof, or we may place a thin sheet of glass between the pictures."

[Printed, 4d. No Drawings.]

A.D. 1864, February 11.—N^o 363.

FONTAINEMOREAU, PETER ARMAND LE COMTE DE.—(*A communication from Alphonse Liébert and Jean Lafon-Saint-Cyr.*)—"Improvements in photographic apparatus."

This invention "consists in the construction of cameras for magnifying, in which the solar rays are received direct on the condenser without the use of a reflector." A sensitive sheet placed at one extremity of a wooden cone, receives a magnified image from a negative plate placed at the other extremity, the solar rays passing through the condensing lens, through a convexo-concave lens, then through the negative plate, and through "a double $\frac{1}{4}$ th usual size objective glass" to the frame carrying the sensitive sheet. Wheel and rack movements, that are worked by hand, are attached to the stand of the instrument to enable the solar chamber" to receive "the rays of the sun perpendicularly to its axis during the magnifying operation;" a heliostat may replace the hand instrument.

"I make use also of a triplet actinic lens with diaphragmed centers, and replacing the one-half, one-fourth, one-sixth, and one-ninth objectives."

The above-mentioned convexo-concave lens renders the converging solar rays parallel and achromatic.

This chamber can be used for the production of positives from a small negative, of a large negative from a small positive, of reproductions" either reduced or enlarged, and "of direct images of large dimensions."

[Printed, 8d. Drawing.]

A.D. 1864, February 22.—N° 441.

GEDGE, WILLIAM EDWARD. — (*A communication from Jules Abelous.*)—(*Provisional protection not allowed.*)—"A kind of photographic album forming a new method of publicity, or photographic and commercial propagator."

"This album will contain, firstly, photographic pictures either of illustrious personages, artists, reproductions of ancient or modern paintings, drawings, and engravings, carriages, horses, objects of art, merchandise, shops, workshops, private houses, public edifices, and establishments, factories, and new inventions; secondly, inscriptions placed on the drawings or around them on the margins behind and facing the photographs, which will be pasted or otherwise secured in the album which will be designated the photographic and commercial propagator. One or more photographs may be placed on each leaf of the album; these photographs may be square, round, oval, octagonal, hexagonal, or triangular, at pleasure. The album to be of any form which may be found suitable in folio, quarto, octavo, 12mo, or other of any desired thickness, and the binding to vary in design and colour at pleasure."

[Printed, 4d. No Drawings.]

A.D. 1864, February 22.—N° 446.

NEWTON, ALFRED VINCENT.--(*A communication from George Gardnier White and Charles Alden.*)—(*Provisional protection only.*)—"An improvement in photography."

In order "to prevent the reproduction of photographic pictures it is proposed to apply to paper such colors as picric acid, which by proper mordants can be combined with the fibres of the paper in a manner that will prevent their removal without destroying the texture of the paper, and any picture which may have been produced on the same either before or after it had been tinted. The yellow color of the picric acid absorbs the chemical rays of light or fails to transmit or reflect the same, and a picture produced on paper tinted or dyed with such color either before or after the picture is taken cannot be reproduced. By the application of such a picture to a bank bill or other paper of value, the reproduction by photographic process or the counterfeiting of such paper is effectually prevented."

"It should be remarked that the invention is not confined to the use of the picric acid, as other tints or dyes possessing the like chemical qualities may serve for the same purpose."

[Printed, 4d. No Drawings.]

A.D. 1864, February 29.—N° 503.

SWAN, JOSEPH WILSON.—"Improvements in photography."

This invention relates to "carbon or pigment printing," a "gelatinous photographic tissue" being used instead of paper, or only in conjunction with paper as a temporary packing.

The said tissue consists of a mixture containing gelatine, water, sugar, colouring matter, and bichromate of ammonium. When the tissue is not required for immediate use, the bichromate of ammonium—the sensitizing medium—may be applied subsequently to the tissue. Either a surface of glass or of paper may be used to form the tissue upon, by pouring the above-mentioned mixture (suitably heated) on to the said surface, and allowing the film thus produced to solidify. The tissue is then exposed to light in the usual way and mounted temporarily upon paper, with the photographically impressed surface next to the paper. The mounted tissue is submitted to the action of warm water, so as to remove those portions of the coloured gelatinous matter of the tissue which have not been rendered insoluble by the action of light. The tissue is then removed from the water, dried, and transferred to the surface to be permanently ornamented, the temporary paper mounting having been removed by the soaking in water.

The above-mentioned temporary mounting of the undeveloped prints may be done by means of a solution of india-rubber in benzole; albumen is the cementing medium, when the undeveloped print is mounted upon the surface to which it is to be permanently attached. Gelatine is the cement for remounting the print after development, if such remounting be necessary.

[Printed, 6d. No Drawings.]

A.D. 1864, April 5.—N° 843.

SARONY, NAPOLEON.—(*Provisional protection only.*)—"Improvements in photography."

"My invention has for its object the production of 'cartes de visite,' or other photographs similar in appearance to crayon

" drawings, ordinarily known as Richmond drawings, and crayon heads. I effect this by a double process of vignetting direct within the camera; firstly, I produce the bust of a person sitting, or other object required, vignetting that portion only that is seen in the finished picture by the use of a properly graduated glass suspended within the non-focal rays of the posterior of the lens, thus protecting certain portions of the sensitive plate from the action of the light; secondly, I place before such portion of the said plate as has already been acted upon by the light an inverted or reverse vignetting glass in such a manner as to secure the said part from any further action of the light, whilst that portion of the plate previously unacted upon is now brought into the focus of a drawing which is placed before the lens, and which represents the afore-named Richmond or scroll drawing, the result being a scroll vignette or photograph. The same effect may also be obtained by the process known as 'double printing.'"

[Printed, 4d. No Drawings.]

A.D. 1864, April 21.—N^o 1000.

BONNEVILLE, HENRI ADRIEN.—(*A communication from Desiré Charles Emanuel Van Monckhoven.*)—"Improvements in photographic apparatus."

"This apparatus is a solar microscope, which serves to project upon a sensitized surface the enlarged image of a photographic negative on glass." This apparatus is composed of two distinct parts—the condenser, and "the enlarging objective."

The condenser, although not achromatic, has no spherical aberration. A crown glass outer double-convex lens having "a very large ratio of diameter to its focal length" is employed; exactly midway between the said crown glass lens and its focal point, is placed a concavo-convex lens, "which completely corrects the spherical aberration of the condenser." At the back of the latter lens the photographic negative is posited. This arrangement ensures that any one point of the negative will only be traversed by one luminous ray, of a given refrangibility, from the condenser.

"The enlarging objective" is free from spherical and chromatic aberration—so far as the yellow and indigo rays are concerned; it is an ordinary photographic lens with a negative achromatic lens behind the objective to render the field flat.

The complete apparatus is mounted so that the photographic negative "is placed in the cone of solar rays so as to be "completely surrounded and equally heated."

[Printed, 8d. Drawing.]

A.D. 1864, April 27.—N° 1060.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Charles Raphael Maréchal, junior, and Cyprien Marie Tessié du Motay.*)—"Improvements in producing photographic pictures "photogenically indelible."

The following process is employed to obtain photographically indelible pictures on siliceous substances generally:—A coating of sensitive collodion is laid upon collodionized caoutchouc; the picture being produced and developed upon the said sensitive collodion, is fixed "by the consecutive action of soluble iodides "or iodo-cyanides, cyanides, or hyposulphites;" the salts or "subsals of silver are then reduced upon the picture by means "of a solution of sulphate of protoxide of iron." The picture is then "strengthened" by the action of pyrogallie acid or other reducing agent on an acidulated solution of silver. "The strengthening may be continued successively in a number of baths." The "strengthened" picture is then washed "in the baths of "cyanides, iodo-cyanides, or hyposulphites, or in ammoniacal "baths."

By plunging the cleansed picture into baths of salts of platinum and gold, the metal of the bath "becomes substituted galvanically "for the coating of silver." The substituted picture is again washed in the above-mentioned cleansing solutions, coated with caoutchouc, submitted to heat in a muffle, covered with a siliceous, boracic, or lead flux, and finally "submitted to the action of the "fire, which fixes and solidifies it."

[Printed, 4d. No Drawings.]

A.D. 1864, April 30.—N° 1093.

PRANG, LOUIS.—(*A communication from Lewis A. Roberts.*)—(*Provisional protection not allowed.*)—"Improvements in preparing "sheets of paper or cardboard for holding photographs and other "articles."

This invention consists in stamping or otherwise making a "recess or recesses of about the depth and size of the photo-

“graph or other article to be held in sheets of paper or cardboard, and in cutting or stamping a slit in each corner of each recess; the slits are made either at the same time, or before or after the recesses, and the corner of the photograph or other article to be held are inserted into the said slits. The sheets of paper or cardboard so prepared may be used in the construction of books for the preservation of photographs, cards, pictures, or other articles, the recesses not only serving to protect the photographs or other articles from injury, but also to aid with the slits in keeping them in their places.”

[Printed, 4d. No Drawings.]

A.D. 1864, May 3.—N° 1111.

GITTENS, ALFRED WATSON.—(*Provisional protection only.*)—

“An improved method of finishing photographic pictures and marbled papers, and improvements in pressing rolls employed therein, and applicable to other pressing rolls.”

“My invention consists in subjecting photographic pictures, after being developed, and marbled papers, to pressure between one or more heated rolls or plates.”

My improvements in pressing rolls consist in heating “the upper or lower roll by means of a spirit or other lamp extending the length of the roll; the lamp is maintained stationary while the roll is free to revolve; this part of my invention also consists in raising or lowering one or other or both rolls by means of screws which work in nuts in boxes in which the axes of the rolls are carried.”

[Printed, 4d. No Drawings.]

A.D. 1864, May 6.—N° 1149.

RIEDER, AIMÉ.—“Improvements in shades, spectacles, and eye glasses, which can also be applied to telescopes and stereoscopes.”

“My improvements relate to the manufacture of shades, with or without glasses, in such manner that they can be folded into a convenient size for holding in the pocket, and for this purpose I construct the framework of the shade of four different parts, viz., the top, the two sides, and the front, in which the glasses can be inserted, and to which I also attach a handle and unite the edges of the three latter parts to those of the former either

“ by a metallic joint or by a joint of flexible material, so that they
 “ can be easily folded flat, one on the other; and in order that
 “ such article be further reduced in size, I divide the top and
 “ front parts into two halves down the centre, which parts are
 “ connected as above-mentioned so as to be easily folded one on
 “ the other.”

“ Another improvement in folding opera glasses consists in
 “ constructing them so that they pivot on a central axis passing
 “ through the line of their diameter.”

The first-mentioned improvements are applied “ to stereoscopic
 “ boxes, the bottom and back pieces of which being united to the
 “ four other parts mentioned on one or both of their edges by a
 “ fixed flexible joint, or a fixed metallic joint, or by a metallic
 “ attachment, such as a hook capable of being disconnected.”

[Printed, 10*d.* Drawing.]

A.D. 1864, June 9.—N° 143S.

SARONY, NAPOLEON.—“ Improvements in the production and
 “ treatment of photographic portraits or pictures.”

An ordinary negative vignette is combined with a “second or
 “ etching negative photograph” in such a manner as to produce
 (by the action of light) a photograph having the appearance of a
 drawing or engraving, the said second negative consisting “merely
 “ of the hatching or sketchy lines photographed upon the glass
 “ from a chalk, pencil, or other drawing of such lines.”

Another process for producing the effect of etched vignettes
 consists of “etching the lines by acid upon the usual vignetting
 “ glass, employing if necessary thin varnish or any other suitable
 “ medium as a coating for the etching lines, and to produce half
 “ tints, if the crude lines should print too darkly; or I can coat
 “ the vignetting glass with japan varnish, then scratch the etch-
 “ ing lines through the varnish, and produce the half tint, as
 “ above described, by coating the lines with thin varnish or any
 “ other suitable material. To produce the same effect by other
 “ modes of printing, such as lithography, copper-plate, or wood
 “ engraving, I merely print the lines from the stone, plate, or
 “ block upon the paper upon which the photographic picture is
 “ to be taken, or after it has been taken.”

[Printed, 4*d.* No Drawings.]

A.D. 1864, July 6.—N° 1676.

GEDGE, WILLIAM EDWARD. — (*A communication from Jules Abelous.*)—"An improved album."

"The improved album, the subject of this invention," contains :
 "In the first place photographic pictures, either inserted in the
 "usual way of inserting cartes de visite, or permanently photo-
 "printed on the leaves of the album."

"In the second place the above-mentioned pictures are sur-
 "rounded with ornamental, printed, engraved or embossed frame-
 "work, leaving when engraved or embossed blank spaces in the
 "grouping, in which spaces are printed in typographical cha-
 "racters, inscriptions of every character, whether analogous with
 "the object they surround or distinct therefrom, and intended
 "for other purposes."

"It is to be understood that one or more photographs may be
 "placed on each leaf of the album, and that the photographs
 "themselves may be of any form, square, round, oval, hexagonal,
 "or triangular at pleasure. The album itself to be of the form
 "most suitable to the pictures or objects illustrated on or in its
 "leaves, and its size may be folio, quarto, octavo, or duodecimo,
 "or any intermediate or other size at will, the thickness depend-
 "ant partly on the size of the pictures, but not confined to any
 "proportion, the binding to be varied as taste may direct in
 "design, material, or colour."

[Printed, 4d. No Drawings.]

A.D. 1864, August 23.—N° 2079.

GRISDALE, JOHN EDWIN.—"Improvements in apparatus for
 "washing photographic prints."

Centrifugal machinery is employed for washing photographic
 prints.

In one arrangement, a revolving drum is used in connection
 with a trough in which the drum is partially immersed. The
 prints (fresh from the water in which they have been placed on
 their removal from the fixing or other bath) are placed in piles
 round the circumference of the drum, each pile being composed
 of alternate prints and sheets of wire gauze. The piles are held
 in their places by means of gratings that form a part of the drum
 itself.

“According to another arrangement, the piles above described may be laid flat upon a disc, which is made to revolve either vertically or horizontally in a trough or cistern, provision being made in the horizontal arrangement for allowing the piles to be brought in or out of contact with the water as required; or in lieu of the photographic prints being disposed in the form of piles or packs round a drum or revolving disc, they may be laid separately and individually round the surface of a drum, a webbing of open or reticulated fabric being wound on such drum simultaneously with the placing of the prints thereon, so as to interpose a thickness of the fabric between each succeeding layer of prints. The process of washing consists in alternately driving out the moisture from the prints by the centrifugal action of the revolving drum or disc, and saturating the prints again,” the trough being supplied with water during the latter operation.

[Printed, 102. Drawing.]

A.D. 1864, August 29.—No 2122.

THOMAS, RICHARD WHEELER.—“Improvements in tents and apparatus employed in taking photographic pictures.”

This invention consists of a certain “combined arrangement of parts,” “whereby a box or case combined with flexible material is arranged to open into a tent, in which the apparatus and materials employed in photography are fixed in position suitable for use as soon as the tent is opened out.”

The apparatus and materials “retain their positions when the box or case is contracted for transport, thus dispensing with the packing and unpacking of the apparatus and materials.”

The tent, when in use, is fixed at the top of a tripod stand, and is constructed of a box, “having the two ends and back fixed to the bottom, whilst the front is hinged at its bottom edge in such manner that it may fold down.” The inclined bath is secured in the position in which it is used, either during transport, or when the tent is in use. The top or cover of the box is in two parts, respectively hinged to the two ends of the box; “when closed the cover comes just above the top of the inclined bath.” The flexible material is fixed to the edges of the cover in such manner that, when its two parts are open, the flexible material forms a covering to the tent as well as a part of the back of the tent; two sliding bolts hold the upper part of the front above the

head of the manipulator. "The gutta percha sink is placed in the centre of the bottom of the box or case, and the camera is arranged to be strapped or fixed to the bottom of the tent when placed on the cover of this sink."

[Printed, 4d. No Drawings.]

A.D. 1864, August 31.—N^o 2143.

ROLLASON, ALEXANDER. — (*Provisional protection only.*) —

"Improvements in glazing and varnishing paintings, prints, and photographs, and which improvements are also applicable to plain paper, woven fabrics, leather, and other substances."

"I take collodion, either alone or in combination with any other suitable gum, such as gum animi, common resin, balsam of aniseed, or oils, such as linseed, nut, or castor, that will dissolve therein, and in about the proportion of one pound of collodion to half an ounce of gum, resin, or oil, and having poured or otherwise placed the same into a polished surface of glass or metal, I allow it to become quite dry. Upon this collodion or its compounds when so dry I brush or pour a cement of gum arabic, dextrine, albumen, gelatine, sugar, honey, isinglass, or of a nature similar to these, either separately or combined, and if combined in about equal proportions, upon which again, when sufficiently dry, I place my painting or photographic or other material, having previously wetted or moistened the same. When quite dry I cut rounds its outside, upon which it may be removed from the glass or metal together with the cement and collodion or its compounds all firmly attached together, producing a beautifully glazed and varnished surface."

[Printed, 4d. No Drawings.]

A.D. 1864, September 8.—N^o 2197.

FRUWIRTH, DANIEL. — "An improved apparatus for cutting photographic impressions, cartes de visite, stereographs, and other such like purposes."

By this apparatus "all four sides of the card or paper are cut away by one stroke of the cutter."

"The apparatus consists of a table plate of metal or other material on which a block or rest of iron or steel is fixed, its dimensions and form corresponding to the size and pattern to

" which the card or paper is to be reduced ; over this block is a
 " four-sided or other shaped cutter or shears, the internal edges
 " of which fit the outer edges of the block ; this cutter is held by
 " an arm whose extremity is attached to a hinge or fulcrum on
 " the end of the table furthest from the block ; underneath the
 " table a flat spring is set by a screw, and the moveable end of
 " the spring is connected by a vertical pin (passing through the
 " table) to the arm of the cutter, so as always to exercise a down-
 " ward powerful pressure or strain upon the same. Near the
 " centre of the table a horizontal cam is set in bearings, and is
 " provided with a handle by which it may be turned by the
 " operator. The surface of this cam is made to assume an
 " oblique or incline during its entire circumference, and at its
 " highest point a vertical ledge descends to its lowest surface ; in
 " its revolution it acts upon a vertical pin underneath the arm of
 " the cutter, and raises the same against the action of the spring ;
 " the card or paper is then arranged on the block and under the
 " cutter, and the cam being turned slightly further, the pin
 " escapes over the ledge and the cutter is forced down, thus
 " shearing all sides of the paper or card with clean and even
 " edges."

[Printed, 8d. Drawing.]

A.D. 1864, September 20.—N° 2300.

SCHOTT, JOHN BERNARD.—(*Provisional protection only.*)—

" An improved envelope frame for the use of photographers and
 " others."

Upon opening the envelope, the uppermost photograph, if several are enclosed, " will be at once visible encased in a frame."

" I purpose effecting this by taking, say, an oblong sheet of
 " paper, millboard, or other suitable material (paper stretched on
 " linen for example), one end of which I cut to the usual shape
 " of the overlap of an envelope, and near the extremity of which
 " I cut out an oval, oblong, or other shaped piece, leaving an
 " an opening of the shape of the photograph I purpose enclosing
 " (this opening or frame may be surrounded by embossing, gild-
 " ing, or other ornamentation). I fold the part carrying this
 " opening over on to the body of the sheet of paper or other
 " material, to which I fasten this overlap at the top and bottom
 " with gum, paste, or other adhesive substance, thus forming at
 " one end of my oblong sheet a case open only on one side, by

" which the photographs are inserted, the upper one appearing framed in the opening cut out of the overlap. The part containing the photographs is then folded over on to the sheet, the end cut and gummed like an ordinary envelope, overlap brought over, and the envelope is closed, leaving the usual back for address. The paper on the right of the photograph and upon which the case or frame folds, that is to say, the inner face of that part which carries the address, gives space for writing a letter or note. I have stated that I use an oblong sheet of paper or other material, but it is evident that this shape is not obligatory."

[Printed, 4d. No Drawings.]

A.D. 1864, September 23.—N° 2338.

WOODBURY, WALTER BENTLEY.—"An improved method of producing or obtaining by the aid of photography, surfaces in 'relievo' and 'intaglio' upon aluminous, vitreous, metallic, or other suitable materials."

When the said surfaces are viewed as a transparency, the varying thicknesses in the material will show the design.

This invention may also be used to produce any design in relievo or intaglio, or copies of such articles.

A mould is first obtained, according to the chief feature in the invention, in which the thicknesses of material "are a transcript of the light and shadows in a photographic negative;" castings may be obtained from an electrotype of this mould.

A film, one-eighth of an inch thick, is spread upon a sheet of glass and allowed to solidify, the said film containing sugar, gelatine, albumen, and "bichromate of ammonia." The film, so produced, is cut into pieces, stripped from the glass, and has its polished side laid on the negative; the said film and negative are then placed in the focus of a solar camera, so that the design is produced clearly at the back of the film. Another mode (not mentioned in the Provisional Specification) consists in the interposing talc between the glass and the film, and placing the talc side next the negative in printing. According to another method (also not mentioned in the Provisional Specification), the film is thoroughly dried in a dessicating box and then used. When sufficiently exposed, the non-actinized portions are washed away by means of hot water, and an image is produced in which the lights are depressed and the shadows raised.

By printing from a deeply-coloured negative, a gelatine mould is obtained which will bear casting from.

[Printed, 4d. No Drawings.]

A.D. 1864, September 24.—N^o 2347.

WORTLEY, ARCHIBALD HENRY PLANTAGENET STUART, and VERNON, WILLIAM WARREN.—(*A communication from Jacob Wothlij.*)—"A new chemical process for producing photographic "pictures," also "an invention" "in the preparation and manner "of using the materials in such process."

1st. Preparing photographic paper.—The surface of ordinary photographic paper is enveloped with a solution of starch, albumen, or other simple medium, in combination with any other material suitable for any special purpose, and is either placed under pressure between two polished surfaces, or subjected to a suitable rubbing process, or the prepared paper may be passed between specially constructed rollers; in either case the fibre of the paper is brought into actual contact with the starch or other medium, and, after being fully charged, the fibre is laid down again.

2nd. Sensitizing photographic paper.—A mixture containing collodion, nitrate of uranium, and nitrate of silver, is employed for this purpose. The sensitive solution is poured on to the surface of the paper, in a properly lighted room; the paper is then floated, and the superfluous quantity of solution poured off; it is then dried in a dark room. When this process is used, the positive is printed to the actual intensity of colour required, and not over-printed.

3rd. Producing on photographic paper a "matt" or "dead" surface.—The sensitive salts are dissolved in alcohol and water, instead of in collodion; the paper is prepared by covering it with the said solutions. Saccharine substances may be added to the solutions if necessary. The paper, thus prepared, is hung up in a dark room to dry, when it is ready for the process of printing.

[Printed, 4d. No Drawings.]

A.D. 1864, September 27.—N^o 2373.

LANE, KEDGWIN HOSKINS.—"Improvements in cases or receptacles for photographs."

" I form a square, polygonal, or cylindrical box, inside which I
 " place a case or chamber mounted upon a spindle, which has its
 " bearings in the top and bottom of the outer box; upon this
 " inner case the photographs are placed, which case can thus, by
 " means of the spindle before named, be caused to revolve so as
 " to bring each photograph in rotation opposite to a door or
 " opening which is formed in one portion of the outer box.
 " Lockets may be thus made to contain many miniature photo-
 " graphs in small compass, whilst in larger forms, such as may be
 " required for drawing-room tables, the case may assume very
 " ornamental shapes, such as a pagoda, which could be made
 " by mounting several cases in tiers one over the other; each tier
 " containing its revolving chamber caused to rotate by the same
 " spindle.

" Another modification of my invention consists in forming
 " lockets or cases for the same purpose upon the plan of a ribbon
 " measure, hinging together a number of frames for photographs,
 " which frames may be made, by preference, in thin metal, in such
 " manner that the ribbon or chain thus formed could be wound
 " round a spindle within an outer box, so that upon the ribbon
 " being drawn through an opening in the outer box, the photo-
 " graphs may be successively exposed to view, and by turning the
 " spindle they may be again enclosed."

The drawings show this invention applied to a locket, a cabinet,
 and a pagoda; a locket constructed upon the principle of a ribbon
 measure is also shown.

[Printed, 1864. Drawing.]

A.D. 1864, October 6.—N° 2465.

FONTAINE-MOREAU, PIERRE ARMAND LÉO COMTE DE.—(*A communication from Jean Nicolas Truchet.*)—" Certain improve-
 " ments in photography for obtaining images direct on cloth and
 " other materials."

Instead of employing deoxidized oil for preparing the cloth,
 virgin wax or spermaceti, together with resin and elemi, is dis-
 solved in essence of lavender, and mixed with carbonate of lead,
 and used for the said purpose. When the cloth is dry, it is
 heated, and its surface is spread over with a thin layer of white
 wax, to which has been added the above-mentioned resinous sub-
 stances. The collodion is spread on the resulting waterproof sur-
 a 2

face, and "is employed to make a negative or a positive." "To render the proof indestructible," after the development and fixation of the picture, it is "allowed to dry for some days; then a flat iron, with a long handle is moderately heated and passed behind the proof over all its surface;" the proof thereby becomes "an entire homogeneous substance with the layers of paint, oil, and collodion."

The method of operating "at the moment of producing the image" is:—The glass—"the negative and objective"—being in their places, the cloth is fixed, the focal distance ascertained, and "the objective" is covered. The cloth is taken off, and the collodion spread over it; when the latter is dry, the sensitive plate is put into the silver bath, the cloth replaced, and "the objective" uncovered. "When the proof is slightly indicated," it is developed, fixed, and washed. "For the proofs on glass I use collodion preferably to the iodites" [iodides?] "of ammonia and potassium mixed in equal quantities"—this is not mentioned in the Provisional Specification. "The collodion is spread with rectified alcohol." The silver bath contains nitrate of silver and acetic acid. The developing solution contains gallic acid and acetic acid. The fixing is done by means of hyposulphite of soda. A blue shade may be given to the proof by means of a solution of chloride of gold.

[Printed, 4d. No Drawings.]

A.D. 1864, October 13.—N° 2526.

BROOMAN, RICHARD ARCHIBALD. — (*A communication from Arthur Baudesson and Paul Houzeau.*)—"Improvements in the manufacture of prussiates of ammonia, and the application of prussiates of ammonia to dyeing, printing, and to photography."

"This invention consists in depositing under the influence of light upon paper, textile fabrics, wood, glass, porcelain, and other suitable substances, a matter colored or ready to become colored, by the aid of chemical agents, by immersion, dyeing, printing, or otherwise."

The invention also consists in the manufacture of "prussiates of ammonia." For this purpose sulphate of ammonium acts upon prussiates of potash; the proportions, together with the salts of potash used, determine the salt obtained.

*In applying the said prussiates to photography, the following sensitizing solutions are used:—*1. A solution of ferricyanide, or

ferrocyanide of ammonium, or a mixture of these salts. 2. A solution "of prussiate of potash or other prussiates." 3. A solution "of prussiate with a base of iron at the maximum, and of organic acid salts of iron;" the image appears in blue. 4. A solution "of double salt of iron and of ammonia, an oxalate, a tartrate, a citrate, or otherwise;" acid prussiate of potash developes blue tints, tannin yields black tints. Sulphocyanide of ammonium or of potassium yields blood red tints.

In the "application upon textile fabrics," for blue, the prussiates of ammonia or of potash, with or without citrate of iron, are used; for black, the blue image is dyed with logwood and glue; for violet, the blue is decolorized by carbonate of soda, then treated with madder, chloride of lime, and soap; for bronze, the decolorized image is dyed with madder and quercitron, and for olive and brown the decolorized image is dyed with quercitron, and is brought up in a soap bath.

[Printed, 4d. No Drawings.]

A.D. 1864, October 14.—N° 2539.

DALLMEYER, JOHN HENRY.—"Improvements in the construction of lenses, which improvements are especially applicable to lenses for photographic purposes."

This lens "is chiefly intended for landscape photography."

"I form two lenses of crown or plate glass, by preference of two different kinds of crown or plate glass, and divide for a given focal length the focal power between the two lenses, by preference in the ratio of 1 to 3, both acting therefore as positive or collecting lenses. The form of the first or anterior crown or plate lens is by preference a concave meniscus. The second or posterior crown or plate lens is also by preference a concave meniscus. The central lens situated between the two crown or plate glass lenses is made of flint glass and concavo-convex, and of such focal power as when placed between the two crown or plate glass lenses the adjacent surfaces having the same radii of curvature and being cemented produce an achromatic whole or nearly so."

When architectural objects are to be photographed, the straightness of the lines will be better maintained if the anterior lens placed at a distance from the other parts of the compound lens.

The diaphragm is placed in front of the anterior lens.

“ By my improvements a more perfect correction than heretofore of both the spherical and chromatic aberrations of the oblique or excentric pencils,” [is?] “ obtained, whilst at the same time the flint glass lens is protected from injury by the crown or plate glass lenses on either side of it.

[Printed, 8d. Drawing.]

A.D. 1864, November 3.—N° 2717.

FOX, THOMAS.—(*Provisional protection only.*)—“ An improved photographic process.”

“ This invention relates to an improved photographic process in which bichromate of potash is brought into contact with logwood; and in practising the invention paper is sensitised by floating it upon or steeping it in a solution of bichromate of potash and sulphate of copper. The paper having been dried in the dark is exposed to the action of light in a printing frame or in the camera, and is afterwards floated upon a decoction of logwood, which is by preference warm, and in half a minute to a minute thereafter the print is carefully removed and dipped in hot water, which carries off the superfluous logwood. The result is a very distinct print with the original lights of the picture or transparency printed from, or of the object before the camera reproduced as lights, and with the shades of a deep black tone. The print is completed by drying and varnishing. A good sensitising solution is made by taking one part by weight of bichromate of potash to two parts of sulphate of copper; whilst the tone of the print may be greatly varied by varying the strengths of the sensitising and logwood solutions. The print may be transferred to paper, cloth, or similar substances, by passing it through a press with the printed side in contact therewith; and it may be transferred in a similar way to wood, stone, and the like, if a coating of albumen is first applied thereto.”

[Printed, 4d. No Drawings.]

A.D. 1864, November 11.—N° 2800.

WILLIS, WILLIAM.—“ Improvements in processes for copying or reproducing by the agency of light, drawings, engravings, lithographs, and photographs, and written and printed documents.”

By this invention a positive photographic copy may be at once obtained.

The principal feature of the invention "consists in obtaining
" copies or reproductions by the action of light by preparing a
" surface with a solution containing a soluble chromate mixed
" with an acid which will combine and form a compound with the
" oxide of chromium formed by the action of light, and darken-
" ing the impression produced by the unaltered chromate by
" means of aniline or other organic substance capable of forming
" a dark and insoluble compound with the said unaltered chro-
" mate,"

In copying a mechanical drawing on paper, the sensitizing solution contains certain proportions of bichromate of ammonium and phosphoric acid. When the paper has been impressed, in the usual way, in the printing frame, it is laid on the bottom of a wooden box; in this situation it is exposed to the vapour of aniline, that evaporates from bibulous paper fastened to the lid of the box, and thus developed. The fixing takes place by alternate washings in weak acid and in water.

Another sensitizing solution contains chromate of copper, sulphuric acid and phosphoric acid. A third contains phosphate of copper, sulphuric acid, and chromic acid.

The pyrol bases may be used instead of aniline for developing.

[Printed, 4d. No Drawings.]

A.D. 1864, November 25.—N° 2953.

CROZAT, LEANDRO.—(*Provisional protection only.*)—"Improve-
" ments in photographic processes, and in portraits or images
" produced thereby."

To produce portraits in "double ground," the sitter is placed before a white cloth, the ground of which is coloured and graduated or shaded. The negative is taken in the ordinary way.

"To produce a shaded bust terminated in white."—A piece of paper is applied to the non-collodionized side of the plate, and the size of the bust traced thereon; this outline is marked on a piece of opaque cardboard, and the said cardboard placed in the pressure frame. The "shading ground" has thus been obtained. To obtain the "general ground," a proof of the bust is stuck on the painted side of the glass. "Then continue applying the white
" ground portraits on the glass so that the head perfectly covers
" the silhouette, and this in its turn should entirely cover the

" shirt front, and by thus supporting the portrait with a tablet of " the same size as the card," expose it to the sun. The double ground, when obtained, must be toned and fixed as usual.

The eyes and shirt front are then to be covered with gum arabic solution to preserve them from the colouring which is to be applied to the whole face. When coloured, greater brilliancy is given to the portrait by stretching it on prepared glass and allowing it to dry; it is then detached from the glass and stuck on cardboard with a solution of gum arabic.

The colouring contains alum, cream of tartar, cochineal, saffron, and magenta. The preservative varnish for preparing the glass contains sulphuric ether, alcohol, and "photographic cotton;" the second solution for preparing the glass is a solution of gelatine.

[Printed, 4d. No Drawings.]

A.D. 1864, December 6.—N° 3048.

MARTIUS, CARL ALEXANDER.—(*A communication from Johann Baptist Obernetter.*)—"Improvements in the application of photography to the ceramic art or to glass."

"This invention consists, firstly, in a combination of processes whereby photographic pictures are obtained, applied to, and burnt in upon articles of porcelain or glass; and, secondly, in a peculiar method of causing the said photographic pictures to be composed of materials which can be fused or enamelled upon ceramic articles including glass."

A glass plate is coated, in the ordinary way, with a sensitive solution containing gum, sugar, glycerine and bichromate of ammonium; the plate is then dried, in the dark, in a drying stove. A positive picture is placed on the prepared surface of the plate and the combination is exposed to the action of light, for the time requisite to impress the image. The plate, on which the image is now slightly visible, is next treated with a mixture containing porcelain colour with its flux and some dry powdered soap; this operation is continued until the requisite density is attained, the porcelain colour and its flux being deposited upon those parts of the plate which were protected from the action of light by the superposed positive. To effect the removal of the picture in porcelain colour from the supporting surface, it is coated with *colloidion*, dried and immersed in alkaline water. The washed *film* is then pasted, picture side undermost, on the ceramic article.

The picture, so adapted, is dried spontaneously, and the collodion film is dissolved therefrom by the action of solvents, "after which the article with its applied picture is burnt in an ordinary muffle furnace, as conducted in the usual process of enamelling."

[Printed, 4d. No Drawings.]

A.D. 1864, December 14.—N° 3107.

CLAUDET, ANTOINE FRANÇOIS JEAN.—"Improvements in photo-sculpture."

"The original photographic pictures similar to those heretofore used to aid the artist's eye when modelling by hand are themselves enlarged to the exact size intended to be given to the model, and are projected on to the block of clay or other material by a camera or cameras, whilst two pictures at right angles of like size previously drawn by hand," "are generally employed at the same time to further aid the artist's eye in judging of the progress of his work, and to determine the various planes at which every part of the block is to be brought during the modelling."

A revolving table, the axis of which is capable of being moved to and fro, is used to place the block of clay upon. Thin blades are pressed into the clay so as to receive the picture and thus to afford a guide to the tool. If the work is pushed back and a piece of ground glass brought into focus, the image received on the glass will guide the artist. If a screen be used, it is stated (in the Final Specification) that, "it is better that it should be on the tool employed by the artist in modelling;" an apparatus for guiding the tool in this case (called the "plastimonograph") consists of a disc, fixed in the middle of a flat bar, which slides in slots that are made through the upright sides of a frame placed in the plane of the image. "By means of a weight, cord, and pulleys, the bar is suspended horizontally between the sides of the slots in the uprights, and remains supported in any position in which it is left during the various stages of the operation; and it can be made to move in all directions required by the least impulse of the hand of the artist."

[Printed, 8d. Drawing.]

A.D. 1864, December 16.—N° 3119.

CHEVALLIER, FRANÇOIS AUGUSTE.—"Improvements in panoramic apparatus."

"My improved apparatus enable me to obtain photographs which directly give to a fixed point previously determined the angle that the vertical points make between them passing through the fixed point and the different points visible from this fixed point;" in instruments of this class, the axis of rotation of the "optical system" is vertical, and the sensitive surface is in a horizontal plane. If the axis of rotation be horizontal and the plane of the sensitive surface vertical, photographs can be obtained which give "directly the angles of altitude of the different points visible from the fixed or station point when the levels are above or below the horizontal level passing through the fixed point."

In the first arrangement described in the Specification and shown in the drawings, the dark chamber and sensitive surface are fixed and the "optical system" is movable. The "optical system" may either consist of a rectangular prism and lens, or of a lenticular prism only. Hairs are employed to indicate the angular direction of the vertical and horizontal planes. A tangent screw, in gear with the disc on which the "optical system" is mounted, moves it as required: converging shutters, a vernier to measure azimuths, and a telescope, are the accessories of the instrument.

In the second arrangement, the sensitized surface is fixed and the dark chamber and "optical system" are movable round a fixed centre.

In the third arrangement, a radial movement of the dark chamber and of the "object glass" is adopted, and the sensitive surface is fixed.

A fourth arrangement, either with a lenticular or conical prism, "is an apparatus comprising a dark chamber, an optic, and a sensitised immovable surface, and giving the compass of the horizon at a single stroke."

The part containing the optic may be placed under the sensitized surface.

[Printed, 1s. Drawing.]

A.D. 1864, December 21.—N^o 3175.

JOHNSON, JOHN HENRY.—(*A communication from Gabriel Jules Bourdin.*)—"Improvements in photographic apparatus."

This invention consists of "the application and use of an apparatus or camera, wherein the photographic plate is rendered

“sensitive and the image or picture taken, and subsequently developed without the necessity of removing the plate from such apparatus or camera.”

The plate “is pressed closely against the open end of a vessel of orange colored glass, such vessel being contained between two uprights, one at each end thereof, which uprights are held against the vessel by screws or otherwise.” The front upright contains the photographic lens, “an opening being left in the end of the vessel corresponding therewith, and the back one has an opening made therein provided with a door.” When the plate is introduced through the said opening, and the door closed by the pressure of a spring, the sensitizing liquid is admitted to the vessel; for this purpose a tube is inserted through a small aperture in the upper part of the vessel (protected by a valve), the tube having a hollow air-tight collapsible ball at its apex that contains the sensitizing liquid. On the compression of the ball, the liquid enters the glass vessel, and (by suitably turning the said glass vessel) the liquid is caused to flow over the surface of the plate. The remaining liquid is then sucked out by the expansion of the ball and the picture is taken. The image is developed by means of another tube and ball. A syringe may be employed instead of a tube and collapsible ball.

One of the instruments described and shown consists simply of an orange-coloured glass vessel, having the lens tube attached to one end and the door attached to the other end of the same. This instrument is not expressly mentioned in the Provisional Specification.

[Printed, *sd.* Drawing.]

1865.

A.D. 1865, January 2.—N° 10.

GYE, FREDERICK. — (*A communication from Louis Strelisky.*) — (*Provisional protection only.*) — “Improvements in mounting

“photographic, printed, and other pictures.”

“This invention has for its object the so mounting photographic, printed, and other pictures that peculiar effects are produced by reason of two pictures in each case being combined

" with and superimposed one on the other on a sheet of glass.
 " The two pictures are produced on paper, one on thin paper,
 " and the other on ordinary photographic or printing paper as the
 " case may be. The picture on thin paper is made transparent
 " by means of spermaceti or varnish, or other adhesive matter,
 " and is made thereby to adhere to the glass. In some cases the
 " glass is ground or deadened on the side where the transparent
 " picture is applied. It is preferred in all cases that the two
 " pictures should be tinted or coloured artistically according to
 " the effect desired to be obtained, but this is not essential.
 " Supposing it is desired to mount two photographic pictures
 " according to this invention, in order to produce a coloured
 " miniature or colored picture of a person, two pictures are taken
 " from the same negative such as is used by artists when colored
 " photographic pictures are to be produced, one picture is on thin
 " photographic paper and the other on other photographic paper.
 " The picture on thin paper is tinted or colored and then ren-
 " dered transparent and caused to adhere to a sheet of glass
 " by means of spermaceti, or varnish, or sufficiently transparent
 " cement. The other picture is also tinted or colored and is
 " placed carefully at the back of the other picture and is retained
 " correctly in position either by adhesive matter or otherwise,
 " and the whole so combined are then placed in a frame. In like
 " manner printed and other pictures are combined together and
 " with sheets of glass."

[Printed, 4d. No Drawings.]

A.D. 1865, January 3.—N° 12.

HELSEBY, WILLIAM GEORGE.—(*Provisional protection only.*)—

" Improvements in the manufacture of enamelled glass to render
 " it more useful in photographic art."

" The practice recently introduced by me of polishing the
 " surface of opal or other enamel on sheets of transparent and
 " colourless glass provides surfaces well adapted for photographic
 " pictures and impressions, especially those seen by reflected light
 " and known as positives. There is however a want of 'depth'
 " or 'body' in the 'ground' of pictures or impressions taken on
 " the said polished enamelled sheets, and to remedy this defect,
 " or supply the desired 'depth' and 'body,' and to provide a
 " smooth surface, are the objects of my improvements. The opal

" or other coloured enamel and the glass are united together in the process of manufacture in the usual way, but instead of the glass to or with which the enamel is secured or made being transparent and colourless I make it with a 'body colour' of any desired tint or quality by placing the proper materials in the 'glass pot;' rose and cream will be the most desirable colours when the enamel is opal, but the colours may be varied. When the enamelled surfaces are polished the sheets are ready for use."

[Printed, 4d. No Drawings.]

A.D. 1865, January 7.—Nº 56.

BENTLEY, BARROWCLOUGH WRIGHT, and BAILEY, WILLIAM HENRY.—"Improvements in producing and finishing photographs and photographic transparencies on paper and other suitable substances, and in the machinery employed therein."

1st. A photograph, already mounted on cardboard, is subjected to pressure, under a press which forms the second improvement of this invention; it is then placed, upon a suitable matrix, beneath the die of an embossing press. By this means the most prominent parts of the picture are raised, and a picture in "relievo" obtained. The dies may either be produced in the ordinary manner, "or they may be made by any of the well known photographic processes of engraving or by the 'hichro-matized gelatine process.'" Thus medallion portraits in relievo may be obtained, or imitation "cameos" may be made by colouring the background according to taste.

2nd. "An improved photographic press."—Certain pedestals, upon a cast-iron framework, receive bearings for the roller. The sliding plate, which travels upon the top of the framework and beneath the roller, is actuated by a link which is attached to a centre or pin that passes through lugs attached to the under side of the sliding plate; the other end of the link is connected to the working lever, which is jointed to a pin that passes through lugs fixed to the framework. A sheet of aluminum bronze is affixed to the upper surface of the sliding plate; this is not so liable to corrode as steel. The roller is pressed upon the sliding plate by means of milled-headed screws. The actuating lever enables the sliding plate, with the photograph upon it, to travel beneath the

pressing roller. In the larger sizes of presses a reciprocating motion is imparted to the plate.

[Printed, 8d. Drawing.]

A.D. 1865, January 10.—N^o 72.

PETTTT, EDWIN.—(*Provisional protection only.*)—"Improve-
ments in giving permanence to and in ornamenting glass
transparent positive photographs."

"My invention consists, firstly, in the following manner of
giving permanence to glass transparent positive photographs:—
I coat or cover the collodion side of the said photographs, or
the side of the glass on which the picture is situated, with
plaster of Paris, cement, wax, or other opaque or semi-opaque
substance, either white or tinted with colour, and I afterwards
cover the said plaster of Paris, cement, wax, or other substance
with a coating of metal which coating of metal may either be
applied by the electrotype process or be applied in the form of
thin sheets or foil attached by any adhesive matter. By the
treatment described the picture is securely protected from the
injurious effects of air and moisture, and great permanence in
the photograph thereby secured.

"My invention consist, secondly, in ornamenting transparent
glass photographs by coating or covering, either wholly or in
part, that side of the glass on which the picture is situated with
coloured materials, such as velvet, silk, or other fabric, gold
and silver leaf, and coloured bronzes, and afterwards coating
the photograph in the manner constituting the first part of my
invention when permanency is required. By the use of the
coloured materials described any required tint may be given to
the whole or part of the photograph, or it may be tinted of
different colours in different parts."

[Printed, 4d. No Drawings.]

A.D. 1865, January 26.—N^o 218.

GAY, DAVID.—(*Provisional protection only.*)—"Improvements
in photo-sculpture and apparatus to be employed therein."

"This invention consists, "first, in cutting the material on which
the portrait is taken or printed, as may be found most desirable,
and in using the marginal or outer portions of the material as
templates." Upon a circular table are arranged a dozen blocks,

capable of sliding in radial grooves towards and from the centre of the said circular table. An upright rod is fixed in each block; a clip affixed to each rod holds one template. The circular table is pivoted, and the pivot (by means of a loose slotted collar) receives and holds the several templates. The plastic material is placed upon the upright pivot, and roughly shaped by hand.

The templates—obtained as set forth above—having been fixed in their respective upright rods:—"I take first that template containing the most prominent outlines, and pushing it into contact with the plastic material aforesaid, hold this template steady with one hand, and with the other hand move the plastic material partly round backwards and forwards until the template has scraped the material at this part to the shape of the template, or partly so, and in like manner I proceed successively with all the other templates, until I bring their edges close together in the collar that supports them, after which the sculptured model may be finished by hand; and where several copies are required, I take a mould thereof by any of the well-known means, and pour plastic material therein in the manner commonly practised of moulding objects in plastic materials."

[Printed, 4d. No Drawings.]

A.D. 1865, March 4.—N^o 618.

PETTITT, EDWIN.—"A method or process for producing a new kind of photographic pictures."

One photographic picture is produced "from two photographic images, the one superimposed upon the other, which picture possesses great relief. Pictures so produced I designate 'binographs.' If I desire to produce a life-sized portrait, I proceed in the first place to take a double negative of the sitter by means of a pair of lenses and a camera obscura in the usual way of taking ordinary stereoscopic negatives; and having obtained a satisfactory double negative, I separate the two pictures and transpose them, placing the right-hand picture to the left and the left to the right; and in this order I cause light to be passed through them in a dark room or camera obscura, and receive the rays so passing through the pictures by a pair of lenses placed at the same distance from them as the pictures were when taken, and the two pictures now become enlarged, coalesce, and are superimposed upon each other at or near the distance from the lenses at which the sitter was originally placed

"when the double negative was taken." The distance between the double negative and the lenses is increased for a smaller picture and decreased for a larger picture than life size. "A binographic picture can also be obtained from two pictures without separation or transposition of the double negative."

To copy a "binograph" "a direct positive or negative" may be taken from the binographic image as thrown upon a screen.

Negative "binographs" are adapted for photographic printing; "a double transparent print on glass is first taken from the double negative, and the binographic negative is enlarged from the said transparent print or positive."

By means of sights, the middle of the stereoscopic camera "is pointed directly at the point of the object to be focussed."

[Printed, 4d. No Drawings.]

A.D. 1865, March 10.—N^o 677.

REISSIG, THEODOR.—(*A communication from Wilhelm Reissig.*)—(*Provisional protection only.*)—"Improvements in ascertaining the presence of 'fixing' agents in photographic productions, in removing the said fixing agents therefrom, and in apparatus connected therewith."

"This invention relates, firstly, to a test whereby the operator is enabled to determine whether hyposulphite of soda or other such fixing agent has been removed by washing or other process employed in the practice of photography. With this view he places the prints after they have been washed or otherwise similarly treated, or the fluid in which they have been washed, in communication with the poles of a galvanic battery, by which means the fixing agent becomes decomposed, and sulphur (if the fixing agent above mentioned has been used) appears at the negative pole. If silver be employed for this pole the effect is more apparent. As this part of the invention depends upon the elimination of the injurious part of the fixing agent, it is evident that it may be used for the removal of the last traces or of larger quantities.

"Secondly, the invention relates to a mechanical method of removing the said fixing agents. For this purpose the photographs are caused to rotate at a considerable velocity, so as to throw off the liquid they contain by centrifugal force. The apparatus proposed to be employed is a folding frame, covered with lattice work, and within which the photographs are placed

“ and then confined. This framework or cage is mounted upon a spindle which is caused to revolve rapidly by a winch handle or other ordinary means.

“ The two parts of the invention may be combined, the test of the former being applied between successive washings and operations of the centrifugal apparatus.”

[Printed, 4d. No Drawings.]

A.D. 1865, March 14.—N° 712.

BROOMAN, RICHARD ARCHIBALD. — (*A communication from Cyprien Marie Tessié du Motay and Charles Raphael Maréchal.*)—

“ Improved processes for the production of photographic images capable of being inked with fatty inks.”

A portion of this invention consists in the employment, for the above-named purposes, of “ chromic acid salts, more acid and more complex than protochromates and bichromates,” in conjunction with “ bodies more capable of reducing the oxygen of the chromates than gelatinous and albuminous solutions.”

Another portion of this invention consists in the use of “ soaps of silver,” in conjunction with gelatinous coatings that contain “ salts of chromic acids,” also for the above-named purposes.

In one process, “ alkaline trichromates ” are mixed with a solution of gelatine that contains gums, acids, or salts, having great affinity for oxygen. Positive inkable images are yielded.

In a second process, bichromates or trichromates of the alkalies, “ and of bichloride of mercury,” also “ bicarbonate of potass and of bichloride of mercury,” are used either pure or mixed with alkaline protochromates, bichromates, and trichromates, with or without the addition of bodies having affinity for oxygen, and added to gelatinous and other similar solutions, for the said purposes, positive inkable images being yielded upon paper.

In a third process, “ the chromo-alkalino-mercurial salts above-mentioned,” in connection with gelatinous solutions, spread upon metal, yield (“after prolonged washings”) images inkable negatively.

In a fourth process, gelatine, chromatized with one of the above-named chromic acid salts, is laid upon paper, or upon metal; the chromatized gelatine is then dessicated and covered with layers of argentic soaps. Two superposed images are produced.

[Printed, 4d. No Drawings.]

A.D. 1865, March 31.—N^o 915.

SMITH, JOHN HENRY.—(*Provisional protection only.*)—"Im-
proved apparatus for mounting photographs."

"The apparatus consists of a fixed block, on which is mounted
"a glass" "plate of the desired shape and dimensions, and the
"edges of which project a little beyond the fixed block." On
this plate is secured a piece of woven fabric, "which is capable of
"being kept damp." "The glass or other plate is of the shape
"and dimensions of the pictures which are to be operated upon,
"and when the photographs are placed face downwards upon the
"damped cloth, and are pressed down a little so as to force out
"the air from beneath, the pressure of the atmosphere on the
"back will keep them down flat, so that their backs may be
"gummed or covered with some adhesive composition without
"difficulty. The backs of the photographs having been gummed,
"the cardboard on which they are to be mounted is placed upon
"them, and upon being slightly pressed down the photograph
"will adhere thereto, and upon removing the cardboard the
"picture will be found to be properly mounted thereon. As the
"cardboard is generally somewhat larger than the picture it is
"important that the latter should be mounted centrally thereon;
"to this end a set of horizontal adjusting or set screws provided
"with plates at their ends are placed at one side, and also at one
"end of the glass plate, and are mounted in vertical blocks, so as
"to be capable of being screwed up and adjusted with nicety
"according to the amount of margin that is required. When
"placing the cardboard on the picture the edges of the cardboard
"should be brought up against the adjusting plates, and thus
"with very little trouble the photographic pictures can all be
"mounted with margins of exactly the same width."

[Printed, &c. No Drawings.]

A.D. 1865, April 8.—N^o 1009.

PROUT, VICTOR ALBERT.—"Improvements in photographic
"cameras."

In taking photographic panoramic views, a screen is employed,
which is placed a short distance in advance of the sensitive sur-
face. This screen limits the size of the portion of the picture
which is taken, at each operation, its sides being made of a "zig-

“zag form like saw teeth,” so arranged, “that the points at the one side correspond to the centre of the notches on the other side.”

At present a rigid screen board is used in connection with slides of considerable length; in the arrangement preferred, however, flexible sliding shutters that work in guide grooves on the slide are employed. As the slide is pushed forward into the camera the shutter is pushed back by a stud; the shutter travels round a pulley at the rear end of the slide, and passes to the back. A stud on the other shutter draws it back so that it comes in front of the sensitive surface, and protects it from the light. To obtain an accurate representation of the sky at the same time that a foreground is taken, an adjustable screen is employed, by which the light of the sky may be in great part intercepted; this screen is placed at the lower part of the camera, and may either consist of an arrangement of wires that becomes more opaque as it descends from the edge, or a number of lines (filled in with black varnish) ruled at graduated distances apart upon a thin sheet of glass. A clockwork apparatus determines the time of exposure of the plate. The removal of a peg admits light to the camera, and starts the clockwork; when a disc has revolved a certain part of a revolution, the peg drops, the clockwork is stopped, and the light is again excluded from the camera.

[Printed, 1s. Drawing.]

A.D. 1865, April 26.—N° 1171.

ROWLAND, JOHN ALEXANDER.—*Provisional protection only.*)
—“Improvements in photographic cameras.”

This invention relates to a mode of constructing cameras “so that large pictures or panoramic pictures may be taken with lenses of moderate size.”

“In carrying out my invention the lens is mounted in a brass chamber or slide, to the end of which is adapted a diaphragm chamber the aperture of which is of a long narrow form placed vertically. The lens chamber is held in a vertical position by means of two fixed studs which work in grooves made longitudinally along the top and bottom of the dark chamber. The lens is also maintained in its proper vertical position by a similar arrangement. The image from the lens passes through the long narrow vertical opening of the diaphragm chamber to the sensi-

“ tive surface of the plate. By traversing this long narrow opening of the diaphragm chamber along the grooves provided for the purpose, the changing image from the long narrow opening falls on to the sensitive surface, and the photographic image is thereby impressed on the sensitive surface. The traversing motion of the lens and diaphragm is effected by toothed gearing or by a screw working in a nut connected with the diaphragm chamber, and this mechanism may be worked by means of a winch with an uniform slow motion adapted to it, or the diaphragm may be moved by means of a cord or chain actuated by clockwork capable of being driven at a regulated speed according to the state of the atmosphere.”

[Printed, *Ad.* No Drawings.]

A.D. 1865, April 26.—N^o 1174.

SMITH, WILLIAM HENRY.—“ Improvements in photographing upon wood, and in the preparation of wood, canvas, silk, glass, and other substances for the purpose of receiving and retaining impressions.”

“ These improvements consist in the application of two substances in succession to the object on which it is desired to produce a photographic impression. The first substance forms a base in the pores and interstices, or on the surface of the said object for the deposition of the second substance, which is sensitized to make it receptive of photographic impressions.”

“ The bases are composed of valata” [balata?], “ india-rubber, gutta percha, or any gum or resin of a like nature dissolved in benzole or in any other hydrocarbonaceous liquid, or it is formed of gelatine and spirits of wine or an oily matter. The receptives are composed of collodion and gelatine, or any gelatinous substance in a state of decomposition or liquid state, of spirits of wine and of nitrate of silver; the nitrate of silver being mixed with a chloride, a bromide, or an iodide, or some salt having similar qualities.”

For some kinds of wood a base consisting of an aqueous solution of gelatine may be used; in the receptive, gelatine, honey, chloride of cadmium, tincture of iodine, tartaric acid, and nitrate of silver may be used. After exposure in the camera, a toning solution of sulpho-cyanide of ammonium and chloride of gold is employed.

" In the preparation of papier mâché, china, earthenware," and other substances, the proportion of materials in the receptive is slightly different from that employed in the preparation of wood.

According to another method, the base contains gelatine, whiting, and linseed oil.

In the receptives, " in certain cases iron may be used in combination with silver in place of the chlorine salts."

[Printed, 4d. No Drawings.]

A.D. 1865, April 27.—N° 1184.

GRAINGER, ALFRED, and GIRDLER, CHARLES MITCHEL.—

" Improvements in the production of portraits or likenesses on certain materials by means of photography."

" Our invention relates to the production of photographic likenesses on porcelain or ceramic ware, and consists in producing the photograph or likeness of a person or thing on the ware itself instead of first taking it on paper or other material, and then transferring it to the earthenware to be afterwards burnt or glazed as heretofore. We prepare a plate or other article of the size and shape required of porcelain or other ceramic material, which we glaze with a transparent glaze and burn it on as usual; on this we take the likeness by means of photography, we then paint or color the photograph taken by hand or by other application of color, then glaze or enamel it again, and burn and complete the article bearing such portrait or likeness. Instead of coloring the photograph before glazing a second time it may be left uncolored, and with the effects produced by photography only which is glazed and burnt in as before mentioned. Borax or other suitable flux may be used for the glazing, which is applied and rendered fluid by heat, as well understood in glazing ceramic wares."

The photographic representation may be produced upon "metal or other material," "which in other respects is treated and prepared as hereinbefore described, the glazing and baking rendering the representation enduring and applicable as hereinbefore described with reference to plates or pieces entirely of ceramic material."

[Printed, 4d. No Drawings.]

A.D. 1865, June 5.—N° 1541.

NEWTON, WILLIAM EDWARD.—(*A communication from William Augustus Leggo and George Edward Desbarats.*)—"An improved "photo-electrotyping process."

A photograph on glass is varnished, allowed to dry, and laid upon a level slab in a dark room; it is then brushed over with "a substance which upon exposure to the light becomes insoluble in water," and the coating is permitted to "stand until it be quite jellied." The sensitive substance employed is a gelatinous solution of bichromate of potash. When coated, the picture is exposed "to the light face downwards" for the requisite time, and the soluble parts of the jelly removed with warm water. Before the remaining part of the jelly is dry, a plaster cast is taken from it.

To produce an electrotype from the said cast, it is dipped into hot water and laid face upwards until all superfluous water disappears; then, while still warm and damp, dipped into melted wax two or three separate times, "allowing the wax to set each "time." The waxed cast being placed face downwards in some hot wax that has been poured upon a metal plate, and allowed to cool, "the wax upon the plate will unite with that upon the cast "and will form a solid mass, from which the plaster may be lifted "away leaving its exact impression in the wax, which when coated "with plumbago will, by the usual process, yield an electrotype "from which perfect copies of the original may be printed."

If desired, a stereotype may be made from the plaster cast as it comes from the gelatinous surface.

[Printed, 4*cl*. No Drawings.]

A.D. 1865, June 12.—N° 1588.

BONELLI, GAETAN.—"A new or improved method of obtaining "or producing optical illusions."

"It is a well known fact, based on certain optical conditions, "and by the use of an instrument known as a phenakistoscope, "that an appearance of motion or animation may be given to "pictures or subjects that have been expressly drawn or photographed for the purpose. The phenakistoscopic apparatus or "instrument being known it will not be necessary to state how "the pictures are arranged to produce the optical illusions, it "will be sufficient to say that an identical result will be obtained

“ with images or pictures of small size and even reduced to
 “ a microscopic scale if to each of the images or pictures a lens
 “ is applied. It is only by the application of as many lenses as
 “ there are images on the disc and not by the successive passage
 “ of all the images under a single lens that the effect will be
 “ obtained. Thus, if a disc carries sixteen images, as many lenses
 “ or magnifying apparatus would be necessary, which receive
 “ a rotary motion in the same direction as the images before
 “ which each lens will be respectively placed.”

“ The pictures or images thus reduced enable me to construct
 “ phenakistoscopic apparatus, whether simple or stereoscopic, of
 “ sizes and shapes not hitherto done, and thereby forming a novel
 “ application of microscopic photography.”

In the Provisional Specification, the method of making objects appear animated is stated to be by placing the pictures upon a small rotating disc; “ each picture is brought in front of a lens
 “ or magnifying glass, whereby the statue or group appears to
 “ the eye in motion in all the different positions in which it is
 “ represented, and in an apparatus of very small or limited
 “ dimensions.”

[Printed, 4d. No Drawings.]

A.D. 1865, June 20.—N° 1653.

CARLEVARIS, PROSPERO. — (*Provisional protection only.*) —
 “ Producing a light applicable to photographic purposes, to light-
 “ houses, and to other illuminations.”

One of the scientific principles upon which the obtainment of this light is founded is the property that the oxide of magnesium has “ of spreading,” on being placed within the oxy-hydrogen flame, “ an intense, bright, and constant light, and which is
 “ admirably suitable to photography and general illumination.

“ The process is as follows:—A piece of chlorid [chloride ?] of
 “ magnesium, larger or smaller according to the effects of light
 “ required, is placed upon a small prism of gas-retort coal, and
 “ upon it, through a small tube purposely made, the flame of th-
 “ oxyhydrogen gas (the mixture of oxygen and hydrogen) is
 “ directed; or a prism, or even a small and well compressed
 “ cylinder of carbonate of magnesia is placed within the flame
 “ from the same mixed gases. The chlorid of magnesium or
 “ the carbonate of magnesia is directly decomposed and resolved
 “ into oxide of spongy magnesium, from which the intense,

“ bright, fixed, and constant light comes forth, causing all the
“ chemical phenomena of diffused sunlight.”

In this light, ordinary gas and atmospheric air may be substituted for hydrogen and oxygen respectively. In large quantities hydrogen “is prepared by causing steam to pass over incandescent charcoal;” “oxygen is prepared with manganese and hypochlorite of lime, with manganese and silicic acid, or with dry sulphate of iron, the products of whose decomposition are caused to pass upon platinated pumice stone, turning to profit the sulphurous acid resulting from the process to the preparation of sulphites.”

[Printed, 4d. No Drawings.]

A.D. 1865, July 6.—N° 1791.

SWAN, JOSEPH WILSON.—“Improvements in the production
“ of printing surfaces by photographic agency, and in obtaining
“ prints therefrom.”

“Photo-mezzotint printing.”—When the image is produced by means of a negative, bichromated gelatine and colouring matter is employed as set forth in No. 503 (A.D. 1864); after the gelatinous tissue has received the actinic impression and previous to its development, the said tissue is mounted upon a surface of glass. The uncoated surface of the glass is placed towards the light. Warm water is used to dissolve the soluble portions of the gelatinous coating, and thus to develop the image. The plate bearing the gelatinous image is surrounded with a rim, hardened by means of a protosalt of iron or of sulphate of alumina, coated with silver whilst wet, and electrotyped in copper. The resulting electrotype is backed up and used for “photo-mezzotint printing.” The said printing is performed as follows:—Warm gelatinous ink is poured upon the greased surface of the electrotype and allowed to cool and solidify; an even pressure is applied to a piece of paper placed over the ink, a press with an elastic tympan being employed for that purpose. The prints thus obtained are fixed by means of a solution of alum. When the image is produced by means of a camera, the surface of the glass to be coated is previously covered with a thin film of caoutchouc or coagulated albumen.

To adapt this invention to copper-plate printing, the sensitive *gelatine* has an increased quantity of colouring matter, the rim is

not used, and thin walls are formed in the recesses of the plate to prevent the removal of the ink in the act of wiping.

To adapt this invention to typographic and lithographic printing, a "crayon photograph" is produced. For this purpose, charcoal, or other opaque substance, is mixed with the sensitized gelatine. When the image is mounted on glass (by means of a caoutchouc solution) the soluble portions of the gelatine are removed by means of warm water.

[Printed, 6d. No Drawings.]

A.D. 1865, July 7.—N° 1808.

WILLIS, JAMES.—"Improvements in the construction of portable dark tents or chambers for photographers."

A number of steel ribs are attached at their upper ends to the top notch of a tube capable of sliding on a rod. "The lower ends of these ribs are pin jointed to the outer ends of stretchers, the inner ends of which are attached to a notched ring fixed on a tube." When the latter tube is slid upwards, the stretchers and ribs will come towards the stick. At the upper end of the rod a top notch is fixed, from which wires are suspended, as in an umbrella; the said wires are jointed to the ribs at some distance from their upper ends. When the movable tubes are respectively slid down, the ribs will be suspended from the top of the rod, and will take a curved form like the ribs of an umbrella." The said frame will fold into a small compass, and the tent thus formed should not exceed half a circle. "The stretchers form when opened out a horizontal frame, which being covered forms a surface on which a sink and other vessels may be placed. The frame is covered with a fabric lined with black cotton, velvet, or other fabric capable of preventing the passage of light into the interior of the tent or chamber. An apron is formed to the tent suitable for surrounding the person, as has heretofore been the case with other forms of portable tents, or dark rooms or chambers. Light is let into the tent through yellow cloth or fabric inserted at suitable parts of the tent, as has heretofore been the case."

[Printed, 10d. Drawing.]

A.D. 1865, August 1.—N° 1984.

WELLS, FRANCIS ROSS.—(*Provisional protection only.*)—"A new or improved method of producing a photographic image on the surface of copper or other metal plates."

"This invention relates to a new or improved method of producing a photographic image on the surface of a plate of copper or other metal, the object being to etch or engrave thereon. I propose to sensitive the plate by the vapour of iodine or the fumes of bromine, or with iodine combined therewith, when a photographic image can be produced thereon and developed by heat or by the fumes of mercury. A picture or engraving, or any picture or drawing, transparent or semi-transparent, can be produced on the surface of the plate to serve as a guide for etching or engraving thereon, so that facsimiles can be produced. In some cases the solution of iodine or bromine may be used in lieu of vapours."

[Printed, 4d. No Drawings.]

A.D. 1865, August 15.—N^o 2110.

HENRY, MICHAEL.—(*A communication from Henry Auet.*)—(*Provisional protection only.*)—"Improvements in the production of surfaces by means of photography."

This invention relates to the production of printing and other surfaces. On the collodionized side of a glass negative is spread a film of gelatine combined with bichromate of potash, sometimes first forming a border of wax. The plate is then placed horizontal to allow the film to dry, and is exposed to the action of light on the non-collodionized side. "Next, by means of the camera obscura, the portions of the film which the black and half tints have preserved from the action of light are dissolved (when gelatine or gum is used this can be done by hot water). When dry the subject will appear in relief." "Any antiphotogenic shade resulting from the bichromate is removed. The subject being metallized by the nitrate of silver" is then electrotyped, or a gutta percha impression thereof is electrotyped. "Sometimes instead of applying the film in solution it may be applied in leaf or scales." Leaf gelatine may be sensitized by immersion in a solution of bichromate of potash. "To produce an artificial grain a drawing is made in fine white lines on a colored antiphotogenic background, or vice versa." "A photographic negative is made by first photographing the grain and then the object, or vice versa." "The negative is then treated according to the above-described method. A design of the grain may be obtained by making a negative from a reduced drawing in black lines on white ground; it may be used as (a transparent) or

“ applied on another negative with the collodionized surfaces in contact.”

[Printed, 4d. No Drawings.]

A.D. 1865, October 13.—N° 2648.

BRINCKERHOFF, JOHANNES DE WITT.—“ An improvement in preparing paper and the surfaces of other materials for use in photography.”

The object of this invention is to produce a partially absorbent but porcelain-like surface.

The paper is treated with a thin solution of gelatinous materials and kaolin, then with a solution of alum or tannin.

French gelatine is softened by soaking in water, and dissolved by heat; with this solution a certain proportion of kaolin is mixed, and the paper is dipped into the resulting solution, whilst the said solution is hot. The paper is then treated with a strong solution of alum or tannin.

“ The paper prepared in the aforesaid manner is much stronger than before being prepared, and not being dissolved by the solutions employed in photography, is much more easily manipulated in the subsequent process of toning and fixing the picture, and the washing can be performed much more easily and perfectly than heretofore, because the solutions employed do not become so much incorporated in the paper.”

“ A solution of borax may be employed in place of alum to combine with the gelatine and form an insoluble compound as aforesaid. In place of employing kaolin I may make use of sulphate of barytes mixed in with the gelatine to give the white color, or said sulphate of barytes may be produced by mixing nitrate of barytes with the gelatine, and then the alum solution effects a double decomposition, forming sulphate of barytes.”

[Printed, 4d. No Drawings.]

A.D. 1865, November 25.—N° 2754.

NEWTON, WILLIAM EDWARD.—(*A communication from Laurent de Montgolfier.*)—(*Provisional protection only.*)—“ Improvements in the preparation of photographic papers.”

The object of these improvements is “ to simplify the operations relative to the obtaining of positive proofs, and also to effect considerable economy in the cost of producing such proofs by

“ dispensing with the use of the chloride of gold or platinum usually employed in the developing process. For this purpose, “ a small quantity hypophosphorus acid, phosphorous acid, “ phosphoric acid, or any salt having such an acid for its base, such “ as phosphate or phosphite of soda, potash, or ammonia is to be “ mixed with the albumen prepared for covering the surface of “ the paper. The proportion of acid or salt employed in relation “ to the albumen may vary from 2 to 20 per cent.”

A solution of nitrate of silver sensitizes the paper. “ The “ proofs will take different shades of brown according to the “ length of time they are in the press. After two or three successive washings in distilled or rain water, the proof without “ undergoing the changing or developing process,” is submitted, in the dark, to a bath of hyposulphite of soda containing chloride of silver, “ in order to remove all the phosphate of silver and “ leave the lights white; the proof is then to be exposed to light “ for several hours while immersed in the hyposulphite bath, “ and then washed dark shades will thus be produced which “ nearly resemble those produced by printing from copper plate “ engravings.”

[Printed, 4d. No Drawings.]

A.D. 1865, November 9.—N^o 2891.

NEWTON, WILLIAM EDWARD.—(*A communication from William Gibson.*)—“ Improvements in preparing the surfaces of paper, “ leather, woven and other fabrics and substances for receiving “ photographic pictures, engravings, lithographs, and prints, and “ for rendering such substances fire and water proof.”

“ The chief object of the invention is to provide the above “ named substances or materials with a smooth enamel or surface,” for the above-mentioned purposes.

“ The invention consists in combining with any of the above “ named materials,” an adhesive mixture, composed of gelatine or albumen, with clay or oxide of zinc. The gelatinous mixture is rendered insoluble in water by means of gallic acid, boracic acid, or tannin, dissolved in water.

The gelatinous mixture may be incorporated “ with the paper “ pulp in the early stages of the paper manufacture, and the paper “ web before delivery from the paper machine may be caused to “ pass in contact with the astringent solution, and subsequently “ between drying and calendering rollers.”

Cloths and other woven fabrics may be treated with the gelatinous mixture, dried, and then submitted to the action of the astringent mixture and of polishing rolls. Wood, leather, and other substances may be similarly treated.

Layers of the said gelatinous mixture may be applied to a sheet of glass, so as ultimately to form a panel; the addition of plaster of Paris to the adhesive mixture facilitates drying. When the mass is dry, it is rendered insoluble by means of the astringent mixture, and an insoluble plate or panel is thus produced.

[Printed, 4d. No Drawings.]

A.D. 1865, November 15.—N° 2937.

BÜNGER, WILLIAM.—(*A communication from Charles Augustus Steinheil.*)—"Improvements in photographic lenses."

The improved photographic lens "consists of two lenses arranged and combined with a perforated disc, diaphragm, or stop placed midway between them, the lenses and stop being mounted or fixed in correct position in relation to each other."

The "periscopic objective lens" "admits of angles of 90°, or even more, being taken correctly, and the size of this image is equal to double the length of the focal distance of the objective lens the latter is calculated from the main point or centre of the objective lens, which lens consists of two lenses of the same description of glass and of positive focus. These lenses may be quite equal or similar to each other, placed in inverted position with the concave sides opposite to each other, and at such a distance apart that all the chief rays cross each other at the same point in the axis between the two lenses. This is the only chief point of this combination of parts forming the objective lens, and the two lenses must be sufficiently curved that the image shall fall within a plane which is normal to the axis whereby the lenses take the well known form in which the raised surfaces project outwards."

With this lens "near and distant objects appear equally clear, and it is not necessary that the camera should be capable of adjustment, as its correct dimensions can be determined when first made," the image is therefore determined "by simply observing the image angle above and on the sides of the camera."

[Printed, 8d. Drawings.]

A.D. 1865, November 16.—N^o 2949.

SARONY, OLIVER.—“Improvements in the rests or apparatus employed when taking photographs of the human figure.”

“For these purposes the stand or pillar which carries the rests is arranged to be fixed by screws to the floor in any desired position. Through the upper surface or tube of the stand a bar (or it may be two bars) slides, and it is capable of being raised or lowered, and of being retained in any desired position in respect to the upper part or table of the stand. At the upper end of this sliding bar are applied two horizontal plates, which are capable of being drawn towards each other by a screw bolt and thumb nut. Between these two plates is a third plate, through which the screw bolt passes, and about which the third plate can turn as on an axis. On the third or central plate is a projection to which is fixed a bent or curved plate, which is formed to receive a slide to which a chair back is attached, whilst the seat of the chair is separate and the part where the back is ordinarily fixed to the seat is masked or hidden by a fringe or drapery. The projection carries a socket through which an inclined hollow bar or tube slides.” The inclined bar can be fastened in any desired position, and carries at its end a hollow socket through which a cylindrical bar slides and turns; this bar receives the rest for supporting the body. The horizontal bar supports a second slide (in a dovetail groove), which slide carries a hollow socket, through which an upright cylindrical bar slides and turns, and can be retained in any desired position. “At the upper end of this bar is a socket which receives a rod, at the end of which is applied the rest for the head, and such rod can be retained in any desired position in its socket by a thumbscrew.”

[Printed, 1s. 2d. Drawings.]

A.D. 1865, November 17.—N^o 2954.

BULLOCK, EDWARD, and BULLOCK, JAMES.—“Improvements in the application of photography to the obtaining of printed proofs or impressions or engravings.”

For the purposes of this invention “reticulated negatives” are produced. One means of obtaining a reticulated or granulated surface upon the negatives is to place such a surface “face to face with any ordinary negative,” and to copy both together through

the light, "thus producing a transparency from which a negative must be taken, a print from which upon paper prepared by any of the bichromate and ink processes known in the trade will have the reticulated or granulated appearance afore mentioned."

In another process, a transfer paper, with reticulations already imprinted upon it, is employed. Ordinary or photographic paper is coated with a glutinous substance, and printed with a reticulated pattern. "In this case the specks of ink themselves form a medium, and by their aid excessive contrasts are avoided and half tones secured. Such picture when so obtained is passed to a lithographic stone or zinc plate, and a printed proof produced therefrom; by the aid of chromolithography coloured proofs may be produced." The coating the paper with a glutinous substance may "be conducted in connection with bichromate of potash or bichromate of ammonia." The said transfer paper may be used "whether the impression be a lithograph, a zincograph, an impression from an electrotpe, or from an engraved or etched plate."

Other processes for granulating the negative, mainly depending upon the use of the camera, are set forth in the Provisional Specification.

The process in which "the specks of ink themselves form a medium" is not alluded to in the Provisional Specification.

[Printed, 4d. No Drawings.]

A.D. 1865, November 28.—N° 3053.

NEWTON, ALFRED VINCENT. — (*A communication from Frederick Von Egloffstein.*)—(*Provisional protection only.*)—"An improved mode of obtaining printing surfaces by photography."

"This invention relates to the use of a heliographic and photographic spectrum for producing printing surfaces from transparent photographs. The spectrum may be composed of a single sheet of highly polished level ground plate glass, free from colours and covered with a good asphaltum etching ground, heated and smoked over a wax paper in the manner of the engravers' black etching ground. The plate when cooled off is ruled over by the diamond or other point of a correct ruling machine, using light pressure to prevent the chipping off of the ground and the flaking or breaking of the glass.

"Upon the insertion of an edge guide or pattern, varying in profile from the mathematical line or straight edge of the ruling

“ machine, and guiding the course of the diamond or other point it will be obvious that any system of lines from the straight line to the semicircle with equal or varying intervals can be traced with facility and preserving the perfect parallelism required for the different spectra.”

“ The plate prepared to receive the engraving is coated first with a sensitive heliographic varnish. Upon this varnish the spectral image is produced by the light falling through the open spaces of the spectrum made as above described. The spectrum is thus imprinted upon the varnish previous to its receiving the photographic image by means of a second exposure to the light. Both images are thus blended into one, the spectrum giving texture to the photographic image. Then may follow the ordinary heliographic manipulations of developing the picture.”

“ The photographic picture ” “ overpowers the spectral image,” the “ spectrum,” however, remains sufficiently strong to hold the printers’ ink.

[Printed, 4d. No Drawings.]

A.D. 1865, December 2.—Nº 3092.

WRIGHT, ANNA JOSEPHINE.—“ An improved mode of applying photographic paper pictures to glass.”

The face of a paper photograph is covered with a varnish composed of Canada balsam thinned with spirits of turpentine, taking care that the varnish is spread evenly over the entire surface of the picture.” When thoroughly dry the face of the picture is attached to the glass to be ornamented by means of a thick solution of gum arabic. When the gum is quite dry, the back of the picture is coated with the above-mentioned Canada balsam varnish, also taking care that it is evenly spread. When this varnish coating is dry, if the picture be not perfectly transparent, the Canada balsam varnish is again applied. Then, by careful washing with spirits of turpentine, as much of the varnish is removed as will lay bare the surface of the paper. If it be desired to remove the paper, leaving only the picture attached to the glass, a soft rubber is applied evenly over the entire surface of the paper; this rubber is covered with the finest description of glass paper, and it rapidly removes most of the paper; the remaining portion of the paper is carefully rubbed away with a

sponge. The picture may now be painted, and is again varnished with the Canada balsam varnish.

Another plan, not noticed in the Provisional Specification, consists in steeping the paper photograph in the Canada balsam varnish until it becomes perfectly transparent. The clarified picture is at once placed on the glass to be ornamented, and is caused to adhere thereto by the varnish. The transparent and affixed picture may then be treated as set forth above.

[Printed, 4d. No Drawings.]

A.D. 1865, December 11.—N° 3190.

GRISWOLD, VICTOR MOREAU.—(*Provisional protection only.*)
—“Improvements in photographic surfaces, and the compositions
“and process for preparing the same.”

The object of this invention is the production of a photographic picture upon an opal surface in a cheap and easy manner.

To carry out the invention the following solutions and preparations are employed :—

“Solution No. 1.—Opal collodion.” This solution contains alcohol, sulphuric ether, acetic ether, gum kowrie, gum shellac, solution of cotton, castor oil, and glycerine.

“Solution No. 2.—Sensitizing.” This solution contains water, alcohol, muriatic acid, chloride of calcium, chloride of ammonium, and bichloride of mercury.

“Solution No. 3.—Opal picture enamel.” This solution contains shellac, borax, water, linseed oil, sulphuric acid, and albumen.

Solution No. 2 is added to solution No. 1 in certain proportions, to produce a sensitive film, according to the strength of the “ammonia nitrate bath;” a small quantity of the sensitizing solution is only required when the plain silver bath is used with “ammonia fuming.” The dried plate is exposed under the negative, then immersed in “solution No. 2,” to which water has been added, and gently rubbed with sponge. The picture is then washed, toned, and fixed; “solution No. 3” is used to “finish” the picture.

For printing in the camera “solution No. 1” is sensitized in the same manner as bromo-iodized collodion, and then by nitrate of silver.

A mixture of unslacked lime and ammonia alum is used to produce ammonia fuming for “the plain silver bath.”

In fixing with cyanide of potassium or hyposulphite of soda, the picture is converted into a negative; it is reconverted into a positive by the application of solution No. 2 diluted with water.

The enamel (solution No. 3) "preserves the purity of the white film."

[Printed, 4d. No Drawings.]

A.D. 1865, December 15.—N° 3248.

PARKER, THOMAS.—(*A communication from Prospero Carleparis.*)—"Producing an oxyhydro-magnesian light applicable to photographic purposes, to light-houses, and to other illuminations."

This invention "consists in producing a light by placing the oxide of spongy magnesium in a flame produced by a mixture of oxygen and hydrogen."

A piece of chloride of magnesium ("same chloride of magnesium that melts into metallic magnesium") is placed between two platinum wires, or otherwise mounted, so as to permit an oxy-hydrogen flame to be directed upon it. Well compressed carbonate of magnesium may be substituted for the chloride of magnesium. In either case, at the high temperature employed, "spongy oxide of magnesium" is produced, and gives an "intense, bright, fixed, and constant light." "The two gases, let them be pure or ordinary lighting gas, and atmospherical air, containing more or less oxygen, must come from two different gasholders through two separate pipes, and must be mixed only at the end of these pipes in a very small tube, forming in that manner a real chalumeau (oxy-hydrogen soldering pipe, or pipe to burn oxygen and hydrogen together.)"

The principles involved in the production of this light are:—

1st. The infusibility of the oxide of magnesium.

2nd. The volatility of the said oxide (in a small degree) at high temperatures.

3rd. The property that the said oxide has, in an oxy-hydrogen flame, of giving an intense and constant light that may be applied to photographic and other purposes.

4th. "The property that the spongy oxide of magnesium has of being the best of all magnesium oxides to produce the oxy-hydro-magnesian light."

[Printed, 4d. No Drawings.]

A.D. 1865, December 29.—N° 3363.

BAGGS, ISHAM.—(*Provisional protection only.*)—"Improvements
" in the construction of stereoscopes and stereoscopic apparatus."

" This invention consists of certain improvements in the con-
" struction of apparatus for operating by the reflection, refraction,
" and transmission of light in such manner as to cause two or
" more stereoscopic views, pictures, or objects to appear to meet
" the eye from the same direction, and capable of dissolving one
" into the other, or of being caused to appear or disappear at
" pleasure either slowly or quickly.

" A simple form of the apparatus for producing these effects
" consists of a square piece of plain plate glass, the same being
" placed at such an angle relative to two stereoscopic pictures
" contained in the instrument that whenever required one of the
" pictures is seen by the direct transmission of the rays of light
" therefrom through the substance of the glass, the other picture
" being seen by reflection from the surface of the same glass. By
" shutting out the light from either picture and illuminating the
" other the first is caused to disappear or dissolve, and the other
" to take its place in the organ of vision. Two or more mirrors
" or other reflecting surfaces may be used in place of one for
" producing these effects upon the well known principle of the
" camera lucida. Lenses may also be employed in a similar way
" to cast the stereoscopic pictures upon a screen or other surface,
" or in the air, so as to form dissolving stereoscopic pictures, and
" to render the effects more striking the same may be magnified
" on the principle of the telescope or microscope, as well
" understood."

[Printed, 4d. No Drawings.]

1866.

A.D. 1866, January 9.—N° 66.

SKINNER, JAMES.—(*Provisional protection only.*)—"An im-
" proved mode of preparing albumenised paper, and the process
" connected therewith."

"The paper is floated on the albumen taken from the eggs of
" common poultry; the albumen may be used either with or with-
" 2

“ out admixture with a portion of some gelatinous substance, such as arrowroot, tapioca, sago, or any other similarly suitable substance, and in such proportions as not to injure the albumen. The paper, after the first part of the process is effected, is then dried off in a temperature varying from 60° to 90° Fahrenheit, more or less. The albumenized paper is then rendered insoluble by being put into a case of metal, wood, or other suitable material, and each sheet is separately suspended therein, the case being perforated all round. Steam at the requisite temperature is then admitted into the case in such quantity and for such a length of time as is sufficient to render the albumen with which the paper is coated quite insoluble. Some time after being taken from the box or case and being perfectly dried the paper is again coated with ordinary albumen in the same manner as in the first instance, and dried in the usual manner.”

[Printed, *Ad.* No Drawings.]

A.D. 1866, January 12.—N° 105.

WOODBURY, WALTER BENTLEY, and DAVIES, GEORGE.—

“ An improved method of and apparatus for finishing impressions (in colored gelatine or other soluble material) obtained from metallic or other plates produced by the aid of photography.”

The object of this invention is to produce a clear white margin, with a sharply defined edge, upon the said impressions from metallic or other plates (see No. 2338, A.D. 1864). The margin dispenses with the ordinary mounting upon paper.

The invention consists:—

1st. In cutting or scraping off the superfluous gelatine “by means of four cutters or scrapers arranged in a rectangular form in such a manner that the area thereby enclosed can be diminished or increased at pleasure.”

2nd. Protecting the central picture, and washing off the composition from the edges or margin with warm water. The impression may be laid upon an india-rubber surface; if a plate, of suitable size and shape, be then firmly pressed upon the said impression, the margin may be washed off by means of a sponge. In a second method, a solution of alum (or other solution that will render gelatine insoluble) is poured into an open frame that is suitably placed upon the impression; the solution is then poured off, the impression dried, and the margin washed off. In a third method, an open frame or “mat” being placed over the central portion of

the impression, a solution of india-rubber in benzole is brushed over the impression to render the central portion of the gelatine impervious to warm water.

Another way of producing pictures with clear margins, is to take the original impression on glass that has a waxed surface, and, after removing the margin therefrom, to press thereon a paper already coated with adhesive cement. This paper adheres to the impression, and the paper and impression together may be removed from the glass, the requisite margin being afforded by the paper.

3rd. Printing impressions on paper direct with a clear margin, by means of a dished plate or frame, the edge of which arrests the flow of gelatine and colour. A press is described and shown, in which a "frisket" (hinged to the interior of the lid of the press) carries the dished frame. When the lid of the press is closed and the impression taken (in gelatine), as the superfluous gelatine is squeezed out it is arrested by the edge of the dished frame, passes between it and the edge of the mould, and does not spread over the paper.

[Printed, 8d. Drawing.]

A.D. 1866, February 2.—N° 324.

WINSTANLEY, DAVID, junior.—"Improvements in producing "printing surfaces by the aid of photography."

In this invention plane printing surfaces (from reliefs or intaglios produced by the aid of photography) are produced by means of a number of pointed wires.

A layer of bi-chromatised gelatine is exposed to light in the usual manner under a photographic negative; the actinic influence of the light thus admitted to the gelatine renders its parts more or less insoluble in proportion to the extent to which they have been acted upon by that light. In the picture produced, by acting upon the exposed gelatine with warm water, the gradations of light and shade are perfectly represented by corresponding thicknesses of gelatine. Each of the said wires have a like conical or pyramidal termination, and—the surface of points produced by a bundle of such wires being placed upon one of the said photographic reliefs or intaglios—a copy of the respective lights and shades is produced by the relative height of the corresponding points above the plane of the picture. The height of the cone of

each wire being equal to the greatest depression of the mould, and the wires being fixed in their containing frame in the position which the said relief has given them, the uneven surface of points thus obtained is planed or otherwise reduced to one general flat surface. The result is a surface in which the lights and shades of the original photograph are represented by dots or marks of a diameter greater or less according to the elevations or depressions of the relief or intaglio from which the uneven surface was produced; this surface can be used in block printing. A cast, in type metal, may be taken from the said wire surface, and, when ground or cut, may be used for printing by the "copper plate" method.

To obtain gradations of light and shade by dots, equal in magnitude but differing in number, a plate (prepared for copper plate printing by the above method), in which the impression has considerable depth, is ground from behind until every point is just represented by a hole. Very fine and equal sized wires are pushed through the said holes, a frame, containing a large number of the said wires, being placed over the plate for that purpose. Upon binding these wires together a surface is obtained "in which the lights and shades are represented by greater or less numbers of dots having the same size. This surface may then be planed, cut, or ground, or casts or impressions in reverse or fac-simile may be taken from it as in the method before mentioned, and used for obtaining pictures or impressions either by the 'block printing' or by the 'copper plate' method."

[Printed, 6d. No Drawings.]

A.D. 1866, February 8.—No 396.

DALLMEYER, JOHN HENRY.—(*Provisional protection only.*)—"An improved photographic lens."

This lens embraces a very large angle of view, say 100° or more. "It is composed of three lenses, two of crown glass and one of flint glass, making a triple combination," and similar in this respect to the triple achromatic lens already manufactured by the inventor; but, "instead of being composed of three combinations, each achromatic or nearly so in itself," it consists of three very thin single non-achromatic lenses, "which, however, when acting in unison, form an achromatic whole."

The construction is as follows:—Two crown lenses are "wrought to a sharp edge of suitable focal length;" they are either iden-

tical in this respect or they are not so, but certainly they are of "different or unsymmetrical forms or unequal ratio of radii, i.e. the anterior crown lens (No. 1) may be a plano-convex, or nearly so, convex side outside, and the posterior lens (No. 2) a deep concave meniscus, also convex outside." Between these two lenses, separated at a certain definite distance, a diaphragm is placed; the said diaphragm divides the space between these two crown lenses in the ratio of their foci, and almost immediately in contact with this diaphragm is placed "a flint glass lens, plano-concave by preference, and of such focal length as with the two crown lenses above named will form an achromatic whole."

[Printed, 4d. No Drawings.]

A.D. 1866, February 13.—N° 449.

GILPIN, CHARLES.—(*A communication from Francis Kossuth and Louis Theodore Kossuth.*)—"Improvements in the production of copper or other metallic plates for the purpose of printing therefrom."

To obtain the said plates, a photographic glass plate, bearing the positive or negative image of the object or design to be printed, and whilst still wet, is treated with a solution containing bichromate of potassium and gelatine, so as (when dry) to form a uniform thickness of sensitised gelatine on the glass plate. The layer of gelatine is then exposed to light, washed in warm water, dried, and metallised for electrotyping by means of an alcoholic solution of nitrate of silver acted upon by sulphuretted hydrogen.

The image on the said photographic glass plate, for reliefs, is obtained by taking on a plate of glass, a positive image "obtained by transparency through another negative one (representing the object to be reproduced in the relievé engraving), on which a striped plate of glass has closely been applied." For "incision engravings" a negative image is taken from the object, the said negative image being grained or shadowed with lines or dots.

Various methods of producing the "grain" are set forth. One method consists in the use of a striped glass plate in contact with the sensitive surface; the stripes are made with a diamond point. The image of a grain previously lithographed on paper may be taken on the sensitive surface. To produce the grain at the same time that the image of the object is taken, a camera is employed that has two opposite object glasses, the images respectively of

the object and of the grain are, by this means, focussed at the same time upon the same plane.

[Printed 6d. No Drawings.]

A.D. 1866, February 14.—N° 469.

HENRY, MICHAEL.—(*A communication from Henry Arct.*)—"Improvements in photography, and in the process of producing printing surfaces and other like surfaces by the aid of photographic agency."

One method of producing the said surfaces consists "first in producing an artificial grain on plates, then in obtaining a raised or sunken design or subject on such plates, and, lastly, in obtaining a metallic surface from the same, the design or subject thereon being raised or sunken."

Gelatine, or other organic substance, mixed with an alkaline bichromate is applied on a translucent plate already bearing a photographic image. The light is caused to act on the said organic substance through the thickness of the plate; when the parts unaffected by the light are dissolved, a subject in relief will remain on the said substance, from which a metal surface suitable for printing may be obtained by means of electrometallurgy.

Printing surfaces may thus be formed from engravings or other pictures, and either sunken or in relief. The figuring of porcelain may also be accomplished by this means.

To produce the above-mentioned grain, a representation of very fine white lines on an anti-photogenic coloured ground is produced on the photographic plate, either before or after the image of the subject is taken; or the representation of the subject and of the grain may be photographed simultaneously by using two plates. The grain may consist of dark lines on a white ground.

Negatives with an artificial grain may be employed to obtain superior photographic positives.

[Printed, 4d. No Drawings.]

A.D. 1866, February 14.—N° 473.

NEWTON, HENRY EDWARD.—(*A communication from Leon Jaubert.*)—"Improvements in optical instruments."

Amongst other details of instruments, this invention relates to the lenses and other parts of photographic cameras.

"The first improvement consists" in the application to all optical instruments in which it is required to cause one tube to slide on or in another of a screw guide, whereby great precision and accuracy of motion for bringing the object into the field is obtained."

The second improvement relates to microscopes and to verniers.

The third improvement consists in the application of a universal joint to the foot of optical instruments.

The fourth, fifth, and sixth improvements relate to microscopes.

The seventh improvement relates to a new kind of object glass and eye-piece.

The eighth improvement relates to an arrangement of the prisms of the binocular microscope, which "is applicable also to photographic apparatus employed for producing simply photographic images having the appearance of sculpture." A number of object glasses may be arranged so as to see the same object through them; "this may also be applied to photography for obtaining the appearance of relief or intaglio."

The ninth improvement relates to a binocular magnifying glass.

The tenth improvement relates to the stage of a microscope.

The eleventh improvement "consists in the adaptation to microscopes and other optical apparatus of a new kind of object glass," which may be applied to photographic apparatus, and which is composed of three lenses; the first "is convergent, the second spheroidal or ellipsoidal, and the third is of a periscopic form." This compound lens is free from spherical and chromatic aberration and astigmatism. The glasses of optical instruments are composed of concentric layers united in groups. "The forms given to these glasses are obtained by a process which consists in giving to the glass (when in a soft state) the form which is required, either by centrifugal force or by means of a plate which will spread out successively the layers of glass; or the object may be effected by placing one above the other thicknesses of glass of different densities softened to the required point, and then united together by means of heat."

The twelfth improvement relates to an apparatus for producing these glasses with concentric layers. A variable rotary motion is given to the central tube which encloses channels for the supply

of air and gas, whereby the fusion of the glass is effected; the mould is placed upon the said central tube. The grinding of these lenses is effected upon a lathe with two transverse motions besides the ordinary circular motion.

The drawings also show a photographic camera for use in microphotography. A prism enables the operator to focus the object upon the rough glass.

A prism "for photographic apparatus for producing black or dark parts, framing, &c.," is also shown.

A megascope, with the above improvements, may be constructed to serve as an apparatus for enlarging photographs.

[Printed, 3s. 6d. Drawings.]

A.D. 1866, February 17.—N^o 505.

WOODBURY, WALTER BENTLEY.—(*Provisional protection only.*)—"Improvements in the production of ornamental surfaces for jewellery and other purposes."

This invention relates to the production of the said surfaces by the aid of photography; it "consists in the use of a combination of materials one of which is opaque and the other transparent or semi-transparent. An ornamental 'relievo' or 'intaglio' surface being produced on the former the transparent or semi-transparent material is forced therein and united thereto, and the picture or ornament will be seen through the upper material more or less, according to the thickness of the same."

An impression in porcelain from a metal mould may be taken for the opaque material, the said metal mould being produced by the method set forth in No. 2338, A.D. 1864. Glass or enamel, as the transparent material, is then forced into the said impression. These two materials being united by fusion, the surface of the latter is ground level.

As a modification, a gilt metallic surface may be filled in with the semi-transparent material, or the impression may be taken in ebonite, and then filled in with semi-transparent material.

"The only condition necessary to this invention being that the relief shall be upon the lower or opaque material constituting the body of the picture or ornament, which must be of a different or opposite color to that of the semi-transparent material used for filling in the surface."

[Printed, 4d. No Drawings.]

A.D. 1866, March 17.—N° 797.

ASHTON, ROBERT HOWE.—"Improvements in pictures obtained upon paper, glass, porcelain, or other surfaces with transparent or semi-transparent materials."

The first part of the invention relates to improvements upon the Woodbury photo-relievo process as set forth in No. 2338 (A.D. 1864); it consists in combining therewith another printing or other method of tinting in any desired colours.

In the Woodbury process, an intaglio surface is obtained, the concavities of which vary with the lights or shades of a photograph; a cast is obtained from the said surface in gelatine mixed with a pigment. The coloured gelatine is poured upon the said intaglio surface, and the paper or glass to receive the picture being placed thereon, the superfluous colouring matter is squeezed out, and the picture is formed by varying thicknesses of ink.

The paper to receive the picture is first printed upon with the desired number of tints by chromo-lithography, or the tints are produced by any other known process; it then receives the Woodbury relievo picture above referred to. The registration necessary to ensure the correct position of the several parts of the picture is accomplished by a press like that employed in the Woodbury process, the projecting pins for registration being allowed to pass through or on one side of the glass plate of the press.

Other pictures besides photographs may have the gelatine process applied to them, so as to obtain casts similar to those given by the Woodbury process for printing from.

The second part of the invention is as follows:—If the outline of a figure be painted in black upon the negative, the said figure may be combined with the rest of the picture by printing it with the tint obtained by chromo-lithography. Pictorial effects may thus be introduced.

Modifications of the above processes are set forth.

[Printed, *ed.* Drawing.]

A.D. 1866, March 20.—N° 820.

LAROCHE, WILLIAM SILVESTER.—(*Provisional protection only.*)—"Improved means and apparatus for producing new effects in photographic portraiture."

This invention consists in placing the person or persons whose portrait or portraits is or are to be taken in front of a background, "and then placing in front of and close to the sitter or sitters a screen or frame about six feet high and five feet wide," covered with canvas, and having an opening cut in the centre of it of any required size or shape. The front of this opening is surrounded with an ornamental frame.

The said frame "is made to slide up and down a groove in a framework, which is made to support it in a perpendicular position, and can be raised or lowered to suit the height of any person or persons by means of counterweights with ropes attached running over wheels fitted to the framework, or by means of a rack and pinion adjustment fixed at the side of the aforesaid framework, and worked with a crank handle, or in any other suitable manner." By means of the ordinary photographic camera and subsequent processes the frame and sitter or sitters are photographed at the same time, "the result being a complete cabinet picture of any size with portrait and ornamental frame complete."

[Printed, 4d. No Drawings.]

A.D. 1866, March 31.—N^o 920.

WRAY, WILLIAM. — "Improvements in achromatic object glasses."

Amongst other uses, this invention is employed in the manufacture of photographic lenses, so as to ensure "absolute coincidence of visual and actinic foci" therein.

By means of this invention "perfect achromatism is obtained, and the secondary and all sub-spectra are destroyed."

According to this invention, the irrationality existing between flint and crown glass is destroyed by the introduction, between the flint and crown lenses, of a fluid or partially fluid meniscus lens, composed of a mixture of oil of cassia with Canada balsam. "The high irrationality of the meniscus lens is (in contradistinction to Dr. Blair's plan) opposed to the comparatively low irrationality of the crown and flint lenses" in the method employed in this invention.

The drawings show "a triple arrangement of glass lenses with two cement films, one enclosed on each side of the concave lens," and "a double arrangement of glass lenses and a cement film between them."

"The power of correcting irrationality and the dispersion of the cement film increases in direct proportion to the amount of oil of cassia used." Other oils and balsams may be used, but oil of cassia mixed with Canada balsam is preferred. The borosilicate of lead glass may be used as a thin meniscus corrective lens. "The negative solution of the question of achromatism may be used when heavy flint glass is employed. In this case the dense glass is an internal concave lens, and the irrationality is balanced by two external convex lenses which differ in their irrationality."

[Printed, 8d. Drawing.]

A.D. 1866, April 5.—N° 980.

COX, EDGAR.—(*Provisional protection only.*)—"Improvements in portable dark chambers or tents for the purposes of photographic manipulation in the field, and of containing and transporting the necessary apparatus."

An oblong box contains a washing trough, tap and tubing, cistern, chemicals, and bath. The hinged lid of this box carries an additional flap, and to each end of the box is hinged a corresponding flap, so that all actinic light may be excluded from the operator while manipulating, by means of the said flaps (when elevated) and a tent cloth suitably stretched across the tops of the said flaps and secured to the waist of the operator. The tent cloth may be carried in the box, beneath the above mentioned trough.

A four-wheeled carriage, constructed with a tank or reservoir, may be used to transport the box from place to place; it is also provided with suitable arrangements for carrying the requisite tripods, and other similar appliances.

"In order to meet those cases in which it may be necessary to dispense with the carriage, as in ascending mountain passes and elsewhere, the upper part of the box with the cover, flaps, trough or sink, and other necessary details may be made capable of removal from the box or case, so as to be carried with the tent cloth and other apparatus by poles or otherwise, and set upon portable legs capable of being screwed or otherwise attached to it."

[Printed, 4d. No Drawings.]

A.D. 1866, May 8.—N° 1315.

WOODBURY, WALTER BENTLEY.—(*Provisional protection only*).—"Improvements in producing designs upon wood and "other materials by the aid of photography."

A metal reverse is taken from an insoluble gelatine mould as put forward in No. 2338 (A.D. 1864). An electrotype from this metal reverse is then obtained in thick metal, the said electrotype being a mould and a fac-simile of that in gelatine above mentioned.

Having obtained this electrotype mould in relief, the inventor heats it "to a dull red heat (or to a sufficient heat to scorch or "discolor wood or other suitable material)," and he presses it "on "to the surface of a piece of truly planed sycamore or other suitable wood, and a picture or design will be the result wherein "the shades are represented by the different amount of burning "or scorching which the wood undergoes, owing to the greater "or less prominence of the various parts of the heated copper "mould, those parts where the heated mould actually touches "the surface being the darkest, and so on in proportion. Instead "of wood other materials may be used, such as velvet, ivory, "cardboard, paper, or other substance capable of being blackened "by heat, and the effect is not necessarily produced by scorching, "as the same effect will be obtained if the wood, paper, or other "material is prepared by any well-known chemical substance "having the property of being blackened or darkened by the "application of heat."

[Printed, 4d. No Drawings.]

A.D. 1866, May 9.—N° 1334.

DALLAS, DUNCAN CAMPBELL.—"Improvements in the pro-
"duction of printing and other surfaces in relief or intaglio."

The design is photographed or drawn upon a glass plate in a medium that intercepts the actinic rays. Over the design a solution of bi-chromatised gelatine is poured, and (when the coating thus formed is sufficiently dry) the uncoated side of the plate is exposed to light. The parts not acted upon by light are then softened and caused to swell by treatment with cold water; this is poured off and the design is repeatedly washed with warm water till the design is free from the gelatinous mixture, and allowed to dry.

Increased relief or a granulated surface to the design is obtained by the following processes:—

1. If the original design has been produced in bitumen of Judea, increased relief of the design may be obtained by recoating the surface with sensitive solution, again exposing to light, and then washing and drying. Repetitions of the process give the desired amount of relief.

2. Damping the insoluble design causes increased relief.

3. If the original design has been produced in a soluble material, the said design may be obliterated by the solvent without injury to the insoluble relief, leaving the glass bare at those parts where the coating is dissolved; an increase of depth is thus produced.

4. A granulated surface may be produced on the relief by laying all over it an aquatint ground, or dabbing the surface with a sticky material and sifting powdered rosin thereon.

Before or after either of these four methods, a mould of the surface is taken by electrotyping, casting, or pressure.

“The process is applicable, among other things, to the production of plates, blocks, or other surfaces for embossing or for printing.”

[Printed, &c. No Drawings.]

A.D. 1866, May 12.—N° 1364.

SOUTHWELL, WILLIAM HENRY, SOUTHWELL, FREDERICK, and SOUTHWELL, EDWIN. — (*Provisional protection only.*)—“Improvements in the production of photographic prints.”

“This invention consists in the production of pictures in which the aid of lithography is introduced for the purpose of heightening the effect of photographs, and is carried out as follows:—
“The photographs are obtained in the usual manner, and the prints obtained therefrom also in the usual way. The lithographic stone intended to be employed in printing is then prepared by the erasing from it or lowering that part of the surface where the photograph is intended to appear, the lithographic printing then takes place, and the result is that the ground or other portions of the entire picture may be of any desired tint or shade.”

[Printed, &c. No Drawings.]

A.D. 1866, May 26.—N° 1473.

Mc FARLAND, COREY.—(*A communication from John Spooner.*)—
—“An improved album for exhibiting photographs and other
“ pictures.”

In this album any one of the pictures “can be concealed or
“ exhibited at pleasure.”

The box which forms the album has closed portions and
portions provided with glass-covered openings. Certain slides,
having projections which extend through the bottom of the case,
hold the pictures and enable them to be exposed to view or
withdrawn into the closed part of the case as desired, the said
case being suitably provided with internal grooves in which the
slides move freely. “One end of the case is made to open upon
“ a hinge or pivot to allow the slides in which the pictures are
“ carried to be drawn out therefrom. When they are so drawn
“ out the pictures are inserted into the said slides, which are then
“ pushed back inside the case.” The end of the case is secured
by a spring catch or other convenient means.

Porcelain photographs, or others which require a light at the
back to show the picture, may be advantageously exhibited by
means of this album. When the apparatus is used to exhibit
card photographs, two of them “may be placed back to back in
“ each of the slides;” either picture may be seen “by simply
“ reversing the box.”

The drawings show an album simply consisting of a box as
described above, also an album consisting of two parts hinged
together “in the form of a book.”

[Printed, 8d. Drawing].

A.D. 1866, June 18.—N° 1641.

DALLMEYER, JOHN HENRY.—(*Provisional protection only.*)—
“Improvements in compound lenses suitable for photographic
“ uses.”

Photographic lenses for taking architectural views consist of
“a combination of three simple or uncorrected lenses, two of
“ which, viz^t., the first and third, are of crown or plate glass and
“ both positive, and the second or intermediate lens is of flint
“ glass and negative;” these three lenses are positioned with
intervals between them, and a stop is placed between the inter-
mediate and posterior lenses. The anterior lens is made larger

than the posterior lens. The anterior crown glass lens is a deep concave meniscus, convex side outside. The posterior crown glass lens is plano-convex, convex side outside, and the intermediate flint glass lens is plano-concave with the plane side facing the anterior lens.

In photographic portrait lenses which consist of two compound or corrected lenses with a space and stop between them, the anterior compound lens is made larger than the posterior compound lens. To prevent these lenses as well as those for landscapes representing objects in one particular plane with painful sharpness and giving too little detail in other planes, the simple or compound lenses are so mounted that the distance between them can be slightly altered. This has the effect of impairing the correction of the lens to any desired extent, so that then the focus is spread over a space more or less, "and then the definition of the picture will no where be extremely sharp, nor on the other hand, will there any where be any marked deficiency of detail."

[Printed, 4d No Drawings.]

A.D. 1866, July 6.—N^o 1786.

FIELD, LORENZO.—(*Provisional protection only.*)—"Improvements in photographic printing frames."

Two flaps carry respectively the negative and the paper or material on which the positive is to be printed, they "are hinged together so as to close upon one another, and studs on the edge of one take into holes in the edge of the other." "The negative flap consists of a frame carrying an inner frame in which a sheet of glass is fixed to support the negative. The inner frame is connected with the principal or outer frame by means of springs at its corners, so that the negative can take an exact bearing on the positive surface pressed against it during printing. When this bearing is obtained the inner frame can be fixed by means of clamping screws. The positive flap consists of a frame carrying a panel having a number of parallel slots in it; an ordinary pneumatic plate holder is fixed in any required position on the panel by means of the slots, and the plate of opal glass or a board carrying the positive paper is held by the pneumatic plate holder. By the facility which the slots afford for changing the position of the pneumatic plate

"holder the surface to be printed can be brought to any required part of the flap so as to take a print from any part of a negative." "The negative being placed in the negative flap and the opal glass or paper in the positive flap, the latter is closed or turned down upon the former and secured by hook fastenings." "The frame is exposed to light in the usual way, and the progress of the printing may be examined from time to time by raising the positive flap from the negative flap."

[Printed, 4d. No Drawings.]

A.D. 1866, July 24.—N° 1918.

WOODBURY, WALTER BENTLEY.—"An improved method of and apparatus for printing from metal intaglios (obtained by the aid of photography) in gelatinous or other semi-transparent ink."

"This invention relates to a method of and apparatus for rendering continuous and automatic the process of printing from metallic moulds or intaglios obtained by the aid of photography," according to the process set forth in No. 2338, or in any other analogous manner.

A cylindrical metal intaglio to print from is obtained by a machine of which the following is a description:—Round the central and non-cylindrical portion of a wrought-iron shaft a cylinder of lead or other soft metal is cast. This roller (when truly turned) is mounted "in a machine similar to a rolling press, having a sliding table traversing beneath the said roller." The gelatine relief is now placed on the table, and motion is imparted to the roller by means of a winch handle and spur gearing; the plate holding the gelatine relief will be drawn through the machine, and an exact intaglio of the gelatine thereby impressed or indented into the cylindrical surface of the soft metal roller.

In the printing machine, the above-mentioned cylinder is supported by standards, and a continuous length of paper is made to pass round a part of its circumference by means of spur gear, suitably placed rollers keeping the said paper in contact with the cylinder. The ink is fed in between the paper and the cylinder at their point of first contact by means of a steam heated *hopper*.

Either a gelatinous ink, or a semi-transparent fatty ink, or a water-colour ink may be employed in combination with the said cylindrical metal intaglio.

[Printed, &c. Drawing.]

A.D. 1866, August 28.—N° 2210.

GOULD, WILLIAM.—"A new or improved mode of reflecting various coloured lights and shades upon stereoscopic and other objects for producing different effects thereon."

This invention "consists in fixing (either at the front or back of the instrument) glass slides or shades of any required color or combination of colors, so that when the stereoscopic slide is placed in the instrument different colored lights are thrown thereon." The said slides are held by spring catches attached to revolving bars or pins (horizontal or vertical), which are carried by brackets and rotated by thumbscrews "causing the said colored slides or shades to rise or fall (turning on their axes) as desired." A coloured glass slide may also be placed over the top light of the stereoscope instead of at the back. For reflecting on glass stereoscopic slides, the said slides or shades may be placed at the back of the instrument, and also over the top light, "or the upper revolving pin can be made to turn completely over" the said top light, and thus to serve both for glass and paper objects. "Set screws are also used for regulating the tightening or loosening of the brackets holding the said revolving bars or pins."

In the Final Specification the inventor states that he can also apply the invention "to the casting of shades on photographic and other similar pictures placed in conservatories, windows, and other like places."

[Printed, &c. Drawing.]

A.D. 1866, September 13.—N° 2355.

BING, LOUIS.—(*Provisional protection only.*)—"An improved mode of and apparatus for determining the actinic power of light."

To measure actinic power numerically a graduated transparent medium is used "varying in transparency from the unit to any required degree of opacity;" to this medium is applied a sensitized strip of paper, "placing it under the transparent

"medium for the purpose of exposing it to the action of the light, and thereby obtaining an indication of the power of the actinic rays." "Overlying" plates of talc, glass, or gelatine may form the transparent medium, but the following plan is preferred. A glass vessel having two flat sides is filled with any suitable coloured solution not affected by light. "The upper plate will have an inclination from the lower plate both in the direction of its length and breadth, that is, from say the left-hand corner upwards, and also upwards to the right. Thus the vessel will be wedge-shaped, tapering in two directions" to the corner which is termed "the unit corner." The whole of the lower transparent surface of the vessel is divided into squares of equal size which are numbered "from left to right with increasing numbers, and also from the lower and thinner end or edge of the wedge-shaped vessel to the thicker end."

[Printed, 4d. No Drawings.]

A.D. 1866, September 27.—N^o 2502.

DALLMEYER, JOHN HENRY. — "Improvements in compound lenses suitable for photographic uses."

1st. "The production of view lenses or objectives embracing large angles." These lenses are "composed of two positive achromatic or actinic combinations of which the higher refracting denser material or flint glass lens occupies the external or exterior position in each combination." Each combination consists of a deep concavo-convex lens of flint glass, and a deep meniscus of crown glass, each combination being achromatic in itself. The diameter of the back combination is half that of the front combination. This lens equalises the illumination, and ensures a nearly perfect correction of spherical and chromatic aberrations, so that it acts quicker than existing lenses.

2nd. The arranging of double combination portrait lenses "so that the lenses composing one of the combinations is of such form and so positioned that by a slight variation of distance or separation between its elements any desired amount of spherical aberration can be obtained without at the same time materially deranging the other necessary corrections of a photographic objective." Both combinations are of the same diameter; the front combination is composed of a double convex crown lens double concave flint lens. The posterior combination is at a distance equal to the diameter of the front com-

bination ; it is composed of a meniscus crown glass lens, with the concave surface facing the front combination, and of a concavo-convex flint lens, with the convex side outside, " these two lenses " having their adjacent surfaces dissimilar."

[Printed, 8d. Drawing.]

A.D. 1866, September 28.—N° 2513.

CLARK, WILLIAM.—(*A communication from Joseph de Susini, Jean Marie Onésime Tamin, and Emile Bondonneau.*)—(*Provisional protection only.*)—"Improvements in the means of reproducing " signs, characters, and other marks in the transmission of " messages and signals by electric telegraph apparatus."

This invention relates to the re-transmission of the characters of electro-chemical telegraphs. Either a galvano-plastic or a photographic process may be employed for this purpose. The strip at the receiving station may serve again as a transmitter to another receiving apparatus at a further station, at which a similar reproduction may take place, and so on until the ultimate station is reached.

The strip at the receiving station having been marked by the electro-decomposition of the salts with which it is impregnated, the electric current from the transmitting station having duly acted upon it, a photograph of the message is taken, from which a copy on a conducting ground in non-conducting ink is obtained. The said copy may have a non-conducting ground, the characters being in a conducting material, and it may be produced from the said photograph (either a positive or negative) by photo-lithography or other analogous process. By using this copy in a transmitting apparatus, similar results are obtained to those produced by the original writing ; these results may be operated from relay to relay until the ultimate station is reached.

A galvano-plastic process is also given at length.

This process may be applied to the systems of Caselli, Bonelli, Lenoir, Hughes, GaiFFE, and others.

[Printed, 4d. No Drawings.]

A.D. 1866, October 12.—N° 2641.

GRÜNE, WILHELM.—(*Provisional protection only.*)—This invention is for "developing invisible photographs by the action of the " ammonia vapours evolved from tobacco, and improvements in

"cigar tubes or holders and tobacco-pipes for holding the said photographs."

In each cigar tube or holder the inventor forms "a transverse opening, over which the prepared paper is fastened with gum, starch, or other glutinous matter, so that when the cigar is lit and the smoke drawn inwards the ammonia vapours will act upon the paper and cause the photograph to be developed." For tobacco-pipes the inventor adopts "a similar plan, taking care that the aperture shall be at sufficient distance from the lighted end of the pipe to prevent the paper from burning;" or he modifies "the arrangement by placing behind the chamber which holds the tobacco another chamber having an opening in which is placed a slide holding the paper, there being a space or perforation around the slide to prevent the draught from being impeded. The papers are manufactured in the ordinary manner as follows:—Albumen paper is first silvered and the desired photograph copied under its corresponding negative, the paper is then washed and finally placed in a solution of chloride of mercury until the image becomes invisible, and after the paper has been well washed with water it is ready for use."

[Printed, 4d. No Drawings.]

A.D. 1866, November 5.—N° 2864.

MEDD, HENRY.—(*Provisional protection not allowed.*)—"Improvements in mounts for cartes de visite and playing cards."

"My improvements on the ordinary cartes de visite mounts and common playing cards consist in printing, impressing, engraving, or otherwise delineating on the back of such mounts or playing cards the arms, crests, mottos, monograms, or other designs representing the armorial bearings or monogrammic devices of the person, family, or personage represented by the likeness in the carte de visite, or to whom the playing cards belong. Such may be represented in their heraldic colours, being printed or executed by hand."

[Printed, 4d. No Drawings.]

A.D. 1866, November 5.—N° 2869.

DE BRIGES, MALBEC.—(*Provisional protection not allowed.*)—"Improvements in obtaining photographic pictures."

" This invention has for its object to produce directly by
" photography grotesque portraits of persons and things. The
" process which has been designed with this end consists in
" deforming the image of the person or of the object by means
" of a mirror, either convex or concave, and photographing the
" deformed image produced in the mirror ; this deformation may
" be regulated by the form given to the surface of the mirror.
" Silvered globes of blown glass may be employed, or the
" mirrors may be curved in one direction and straight in the
" other, and placed either horizontally or vertically and convex
" or concave ; or concave spherical mirrors or mirrors of any
" other form may be employed according as it is desired to
" widen, swell out, or shorten the image or deform it in any
" other way. The photographic impression is taken directly
" from the deforming mirror by the processes and with the
" precautions generally used for reflected photographic images.
" If desired, parts of pictures thus obtained may be combined
" with parts of other pictures obtained in the ordinary manner
" so as to limit the grotesque to the extent desired. The pictures
" may be copied and enlarged by the ordinary processes."

[Printed, 4d. No Drawings.]

A.D. 1866, November 10.—N° 2939.

SKAIFE, THOMAS.—" An improved apparatus to be used in
" obtaining photograms."

This invention relates to the construction of an apparatus for
igniting any composition, the flame of which is sufficiently actinic
to produce photograms.

A platform, perforated with one or more touch-holes, is sup-
ported by springs so as to permit of its being easily vibrated by a
touch of the finger. Connected with the platform is a reflector
pierced with a groove, " through which communication is made
" with one end of the platform by which it may be touched, or
" struck, so that by means of the aforesaid springs it may sud-
" denly vibrate." The deflagrating powder being placed upon
the platform is suddenly brought into contact with the light
from a spirit lamp placed underneath it, and " at the same instant
" the platform being thrown into vibration communicates this
" motion to the particles of the powder or other substance to
" be ignited, the result of which action is that every particle

“explodes or is ignited simultaneously, and producing a flash of light, which, acting upon a sensitised plate in an ordinary camera produces the picture of any object placed before it. When the picture of a near object is required the powder may be placed over a touch-hole; if the picture of a distant object is to be taken then the powder may be distributed over the platform and over several touch-holes, to all of which the light may be applied.”

[Printed, 4d. No Drawings.]

A.D. 1866, November 15.—N° 2997

BERNIERI, LUIGI.—“Improvements in photography.”

This invention “has reference to obtaining photographic back grounds with inscriptions, monograms, heraldic, and other devices thereon so as to present to portraits or otherwise a medallion-like appearance in relief in place of the plain unfinished borders as at present, and consists in writing or printing the said inscriptions, letters, devices, or otherwise upon the ground glass or semi-translucent surface surrounding the image upon the negative or collodion plate, so that, by covering or blocking out the said portrait or other part of the plate not required to be acted upon by the light, the said inscriptions or devices as aforesaid may be transferred upon the card, as also the deeper tints forming the shadows to the outline of the border in relief. By this process white inscriptions or otherwise are left or produced upon the disk or tinted ground of the medallion as before described.”

The drawings represent a medallion portrait at the various steps, as described above, and in its complete form.

“The disposition and arrangement of the different tints, together with the shades, monograms, or otherwise, may be greatly varied or receive such other modifications as may be found necessary.”

[Printed, 8d. Drawing.]

A.D. 1866, November 15.—N° 3002.

GRÜNE, WILHELM.—“A chemical decoration on gold, silver, and other similar metals and colours on porcelain, glass wares, crystal wares, delft wares, potters’ wares, and similar matters called Grüne’s proceeding.”

The design on the negative plate is blackened by chloride of platinum, dried, covered with a flux and annealed. The picture film from this negative is obtained by pouring iodised collodion over its picture side, submitting it to the action of nitrate of silver solution, placing it in a frame and exposing it to light transmitted through the negative. The plate is then placed in a solution of sulphate of iron and sulphuric acid; the portions acted upon by light appear in silver, and the plate is washed, fixed by hyposulphite of sodium and again washed. The picture film is then separated from the negative by immersion in water containing glycerine. The film may be treated with chloride of gold or other metallic salts, according to the colour it is to receive. The picture is then bathed in a solution that will colour it by impregnation of the matter of the film; by annealing it afterwards various combinations in different metals may be obtained.

The film is transferred to the object to be decorated by immersing the film and the article together in a large vessel filled with a mixture of water and glycerine. The film is applied to the surface by means of a hair pencil; a coat of flux is then laid on, and the article is annealed, burnished, and polished in the usual way.

[Printed, *Ad.* No Drawings.]

A.D. 1866, November 26.—N° 3113.

COURTENAY, ROBERT HENELADE.—(*Provisional protection only.*)—"Improvements in the preparation of printing surfaces by the aid of photography."

1st. Metal plates engraved in relief for type printing.—A photographic negative is photographically printed on "to a transfer paper prepared with a solution of gelatine, sugar, albumen, bichromate of potash or ammonia, or both in combination with a quantity of bichloride of mercury and hyposulphite of soda." The design is inked with transfer ink, sponged, dried, and "transferred to the metal plate to be engraved." Either a zinc plate or a copper plate coated with zinc is employed to receive the photographic design. The plate is etched with nutgalls, the transfer ink is cleaned off and the plate inked up. The back is then protected by means of varnish, and (in the case of a coated plate) the zinc that is not covered with the ink is removed, weak acid being used for that purpose. The plate is then electro-etched, and is ready for printing from.

2nd. "Intaglio plates such as are used in the copper plate press."—A photograph is obtained "on litho transfer paper as before," and is transferred to the surface of a highly polished copper plate coated with a thin film of zinc; the plate is then etched and inked, the bolder parts of the design being built up thicker with prepared mineral ink. Where there is not any design the zinc is removed with acidulated water, the plate is dried and metallised with plumbago or bronze powder. The plate is then submitted to the action of a small battery in the ordinary copper solution, and thus coated with copper; it is then attached to a powerful battery; the electrotype thus produced is used to print from.

[Printed, 4d. No Drawings.]

A.D. 1866, November 27.—N° 3116.

FOURNET, AUGUSTE, and NADAUD, OCTAVE.—"A magic camera."

One of the peculiarities of this invention is that, with a suitable magnifying power, transparent pictures such as photographic positives, may be shown by means of this camera.

"The object of this invention is to construct a magic camera to show on a ground glass a magnified image of a picture. The camera is composed of two parts, the first part is a globe or sphere made of brass, tin, wood, or any other material with an opening through the top and bottom to allow of a lamp, candle, or other kind of light being put inside the globe, the bottom of the globe being by preference arranged to rest on the socket of the lamp or other kind of lighting apparatus employed. Through the side of the globe a round hole is formed, in front of which is a slide in which the picture is placed, and adapted to the slide is a tube, inside of which are two lenses of a magnifying power of from four to twenty times, or more.

"The second part is a camera equally made of brass, tin, wood, or other suitable material; the back end of this camera is connected with the globe by a tube into which the tube projecting from the globe is inserted. The face or front of the camera is closed by a ground glass, on to which (when a light is introduced into the globe) is thrown a magnified image of the picture placed in the slide."

[Printed, 10d. Drawing.]

A.D. 1866, December 3.—N° 3177.

WINSTANLEY, DAVID, junior.—(*Provisional protection only.*)
—“Improvements in obtaining basso-relievo or other such
“ designs in relief and also in depression by the aid of pho-
“ tography.”

This invention relates to the obtainment of the said designs by submitting a layer of chromatised gelatine to the action of light.

In the first place a negative is obtained “in which the comparatively dense and transparent parts are regulated in their gradations according to the respective distances from the lens of the several parts which constitute the object to be copied.” In order to avoid the extreme effects by photographing various “tints” the object is caused “to assume one tint by the application to its surface of a suitable colour.” To illuminate the object, the inventor avails himself of the fact that the amount of light proceeding in divergent rays from a given point, line, or plane which falls upon a given space in front of that light depends upon the distance of that space from the source of light; therefore the object is submitted only to the diffused light which comes from an opening. A reflector may be used to diffuse the light equally. The rays reflected to the camera will be strongest for the nearest part of the object and weakest for the furthest, with gradations. The photograph so obtained is used for producing a mould in chromatised gelatine, and from this mould a cast in plaster or other material is taken, the said cast will be a basso-relievo. These surfaces may be used for embossing purposes, or the chromatised gelatine itself may “be so used for some purposes.”

[Printed, 4d. No Drawings.]

A.D. 1866, December 6.—No. 3221.

LANE, FARINDON.—(*Provisional protection only.*)—“Improvements in photographic pressure frames.”

“My invention relates to an improved pressure frame for printing positive proofs from photographic negatives. It consists of a back piece, to which a spring clip is attached, which serves to hold the plate and the paper together by one end during the printing. To the front edge of the back piece a flap is attached

“ by a hinged joint, allowing it to turn back to examine the
 “ print; this flap with a part of the back piece forms a backing
 “ somewhat larger than the plate to be printed from, and this is
 “ covered with black velvet, cloth, or other elastic material to
 “ ensure contact between the plate and the paper. Attached
 “ to the flap are other spring clips fixed to pieces which slide in
 “ sockets so as to allow of their being easily withdrawn and
 “ replaced on the edge of the plate when it is necessary to examine
 “ the print; these clips when on give the necessary pressure to
 “ produce contact between the paper and plate for the purposes
 “ desired.”

[Printed, 4d. No Drawings.]

A.D. 1866, December 15.—N^o 3303.

SWAN, JOSEPH WILSON.—“ Improvements in the treatment of
 “ gelatinous tissues of gelatine and gum and of compounds con-
 “ taining such substances.”

This invention “ consists in the use of salts of the sesquioxide
 “ of chromium, as, for example, sulphate of the sesquioxide of
 “ chromium or the substance known in commerce as chrome alum,
 “ as a means of rendering gelatine or gum (Senegal or Arabic)
 “ or compounds containing those substances insoluble in water.”

Amongst the uses to which this invention is applicable are:—
 The fixing of photographs mounted with gelatine; and the pre-
 paration of photographic paper sized with gelatine or gum.

To fix photographic prints mounted with gelatine, they are im-
 mersed in a solution of chrome alum, or the prints are mounted
 on paper wetted with the said solution, or a mixture of gelatine
 with the solution is employed as the cement wherewith the prints
 are mounted, the mixture being made immediately previous to
 using “ in consequence of the tendency of the mixture to solidify
 “ after the addition of a solution of chrome alum.”

“ In rendering gelatine insoluble when used as a glaze, sizing
 “ or varnish for paper, or when formed into a sheet,” the inventor
 applies “ a solution containing about five per cent. of chrome
 “ alum ” to the gelatinised surface or gelatine sheet, or the sur-
 face or sheet is immersed in the above-mentioned solution, or a
 sheet is formed “ from a mixture of a solution of gelatine and the
 “ above-mentioned solution of chrome alum.”

[Printed, 4d. No Drawings.]

A.D. 1866, December 24.—N° 3393.

ASHTON, ROBERT HOWE.—(*Provisional protection only.*)—

“Improvements in producing printing surfaces and carvings from moulds obtained by the aid of photography.”

“According to my invention I use moulds, the different depths of which correspond to the lights and shades of a photograph, such moulds being well known and in use for purposes apart from my invention. From these moulds I obtain printing surfaces by passing the tracer of a pentagraph of that construction known as Jordan’s or other similar ruling machine over them, and which tracer being acted upon by the different degrees of depression alters the direction in which the etching point moves. Beneath this etching is placed a sheet of copper, steel, or other metal coated with a protecting medium, wax, for instance, after the usual manner adopted by engravers, and the design which is cut through the said coating may therefore be etched, as is well understood.

“In producing carvings I employ moulds as above described, but cause the tracer to regulate the depth to which a rotatory or other cutting tool acts upon the material to be carved; these carvings may be ornamental in themselves, cameos, for instance, or may afford dies for embossing.”

[Printed, &c. No Drawings.]

APPENDIX.

A.D. 1851, August 23.—N° 13,726.

PALMER, JAMES.—“Improvements in delineating objects, and in apparatus and materials for that purpose.”

1st. “Various improvements in delineating objects on sheets of glass or gelatine placed between the object and the eye of the operator;” also “various methods of reducing, enlarging, multiplying, and transferring the drawings thus obtained.”

2nd. “Various improvements in materials and apparatus adapted for the aforesaid purposes.” Under this head a mode

of preparing insoluble gelatine is described. Amongst other purposes, the insoluble gelatine is applicable to "the obtaining of photographic images." An aqueous solution is made containing alum, acetate of lead, and borax; upon the subsidence of the white precipitate formed, the clear liquor is drawn off. Into this clear solution either sheets of gelatine, or sheets of glass coated with gelatine, are immersed for several hours. "The sheets are then taken out and allowed to dry, and are then fit for use."

To render the gelatine insoluble other salts of alumina may be used. The following are other salts having the same effect:—Bi-chloride of mercury, borax, acetate of copper, sulphate of copper, sulphate of iron, acetate of lead, nitrate of lead, acetate of baryta, fluoride of sodium, fluoride of potassium, cyanide of sodium, cyanide of potassium, sulphate of soda, sulphate of potash, oxalate of soda, oxalate of potash, acetate of soda, and acetate of potash; boracic acid solution has also the same effect.

These sheets of insoluble gelatine, or plates of glass coated with the gelatine which is then rendered insoluble, "may be employed for photographic purposes, as they admit of being immersed or covered with the various solutions without the gelatine being dissolved off the glass."

[Printed, 1s. 4d. Drawings. See *Mechanics' Magazine*, vol. 56, p. 197.]

A.D. 1854, December 14.—N° 2637.

CORNIDES, LOUIS.—"Certain improved apparatus for coating or covering surfaces of glass or other material with collodion."

"This invention consists of an apparatus intended to facilitate and ensure the coating or covering of plates of glass or other surfaces requiring to be coated with such material, to be employed for various purposes, both useful and ornamental, by which means the great loss and inconvenience from the evaporation of æther, hitherto inevitable in such operations, is entirely obviated."

The apparatus which the inventor employs for the above-mentioned purpose "consists of four principal parts; viz., a vessel or receptacle capable of being made air-tight, and intended to receive the objects to be coated; an air-tight vessel or reservoir to contain the collodion; an air pump in connection with the above-named vessels, and a worm for condensing the

“æther. This apparatus is used by placing the object to be coated in the receptacle, and after shutting the latter air-tight, the air is exhausted from it by the air pump, and then the collodion is let into the receptacle from the reservoir by gravity, or the action of air force pump, or of an ordinary suction and force pump, placed between the reservoir and the receptacle. After the object is thus immersed, the collodion is withdrawn back into the reservoir by the same means, and the receptacle is then subjected to a temperature sufficient to evaporate the æther which passes off into the worm.” The condensed æther may be drawn off from the worm by means of a cock below. The dry plates are removed by withdrawing the upper part of the receptacle, and a fresh supply is substituted. “The operation may then be repeated as before.”

[Printed, 8d. Drawing.]

A.D. 1855, February 6.—N° 275.

GEDGE, JOHN.—(*A communication from J. E. Pointeau.*)—(*Provisional protection only.*)—“Improvements in frames suitable for photographic or stereoscopic proofs or portraits.”

“Instead of the frames at present in use for receiving and protecting stereoscopic or photographic proofs or portraits,” the inventor proposes “to make frames by which a certain distance shall be preserved between the prepared glass and the proof or portrait, making the back framing in such a manner as to secure the said object of exact distance. It is known that of stereoscopic proofs two are taken from the same subject at different angles; these are superposed in frames, and only one is visible, but that one in great relief.” This effect however will be much increased by the use of this invention, “which, from the peculiarity of the parts, forming in the whole a frame, secures the spectator a view of the object, portrait, or proof in its highest developement, and produces an effect hitherto unknown in photographic or stereoscopic objects.”

[Printed, 4d. No Drawings.]

A.D. 1855, February 9.—N° 309.

PONT, BARTHÉLEMY. — (*Provisional protection only.*) — “A process of autographic engraving.”

This invention “entirely supersedes the object glass, and it is

PH.

L

“ the plate itself on which the artist has made his engraving
“ which gives the most faithful impressions.”

“ Mode of operating.—Take a plate of glass, prepared with
“ collodion, and sensitized by nitrate of silver, then expose it
“ in the dark chamber to receive the impression.” The plate
“ then undergoes the ordinary manipulation of photography until
“ it presents a completely smooth surface, and of an intensity in
“ harmony with the tint for the positive proof.” The plate is
then well washed, fixed with “ hyposulphate” [hyposulphite ?]
of soda, and treated with a solution of dextrine; the plate then
remains twenty-four hours before it is used.

“ Execution of the autographic engraving on the plate.—The
“ plate on a black ground, the part prepared with collodion
“ uppermost, the artist, with points, pens, or any other instru-
“ ment fit for taking off cleanly the collodion, is to draw all the
“ tracings which are to serve as a model for his engraving; he
“ will easily be able to judge of the effect of his work, for each
“ part removed presents black tracings, as is the case in a pen
“ and ink or pencil drawing. Should the black masses appear
“ to him too heavy, he can lighten them by using silver white
“ diluted in water, and applied with a very fine brush. If he
“ wishes to obtain spots completely white he has only to lay on
“ a thicker coat. The striking off impressions is produced by
“ the same means as in photography, but only more rapidly.”

[Printed, 4d. No Drawings.]

A.D. 1857, June 22.—No 1744.

SEROPYAN, CHRISTOPHER DICRAN.—“ A mode of preparing
“ bank notes, bills of exchange, and other papers to prevent
“ counterfeiting by photography and its kindred processes, and
“ a mode of preparing an ink for the same.”

This invention “ consists in using two or more colours, which
“ do not reflect nor transmit but absorb the chemical rays of
“ light; one of which shall be applied to the paper either by
“ printing, staining, or other mode, so as to cover the surface
“ with a tint or ground of a red, orange, or yellow shade or color,
“ while an ink of a different color or shade from the tint or sur-
“ face color shall be used for printing the other parts of the
“ note, that is the obligatory and ornamental parts upon the said
“ surface; the said ink consisting of such ingredients as will

“ render it equally or more fugitive than the color forming the tint or surface color of the paper.” The inventor has “ for this purpose invented an ink, which is composed of a black precipitate, produced by the action of an alkali upon sulphate of iron in aqueous solution; this is washed with water and mixed with gallic acid or extract of logwood. This mixture well dried is then ground in boiled linseed oil or painters’ varnish. If not found sufficiently black a little blue may be added. Other organic or metallic substances may be also employed, provided they possess the required relative properties of absorption and fugitiveness to the other shade or color.”

[Printed, *4d.* No Drawings.]

A.D. 1858, April 13.—N° 793.

SPILLER, THOMAS.—(*Provisional protection only.*)—“ Exhibit-
“ ing slides in the stereoscope and preserving them from injury,
“ to enable each slide to be conveyed to the point of view, and
“ then after use deposit them each in its place in the box without
“ handling, or exposing the slides to the chance of being soiled,
“ keeping them always under cover in safety, a box 18 in. by
“ 8 in. square will hold and exhibit near 1,000 slides.”

“ The box is made in two compartments, with a square drum
“ on the top over the parting. Inside the box are placed guide
“ lines or wires, the slides are then fixed in a chain made ex-
“ pressly ” “ the length required, one end of such chain is then
“ fixed to hooks on the guide lines (which slide on them, and
“ traverse from top to bottom in each compartment of the box),
“ the chain is then properly folded and laid in one compartment
“ of the box, and the other end of the chain carried over the
“ drum, and fixed in like manner to the hooks on the guide
“ lines in the other compartment of the box. By turning the
“ drum, over which this chain of views passes, the slides will be
“ brought before the lens or sight of the stereoscope (which is
“ fixed on a line with the axis of the drum), and exhibited.
“ When done with, the drum is turned one-fourth round, and
“ another view exhibited in the same manner, untill all the
“ pictures are brought in rotation from the full compartment of
“ the box exhibited in the stereoscope, and carried into the other
“ compartment and folded carefully up in their place, when by
“ turning the drum the reverse way, the views repass through

" the stereoscope again into the first compartment, exhibiting " them both ways." The name of each picture may be told by an indicator; the stereoscope may be fixed to the box with a swivel " and the box may be made to elevate or depress to the " height required."

[Printed, 4d. No Drawings.]

A.D. 1858, April 22.—N° 887.

MAUGEY, PIERRE.—(*Partly a communication.*)—" Improve-
ments in diaphragms for optical instruments."

This invention " relates to a mode of constructing diaphragms, " whereby the size of the aperture may be increased or diminished, " or regulated at pleasure to the greatest nicety.

" This object is effected by making the diaphragm of some " elastic material, which is capable of being expanded or " stretched. The material which is preferred is a disc or sheet " of india-rubber, either vulcanized or in its natural state, or " some other analogous elastic material. A small central " circular opening is made in this disc, the edges of which are " securely held or clamped, and by forcing the disc outwards by " means of any convenient instrument, so as to stretch the " material, the central opening or aperture made therein will " be expanded; or by drawing back the stretching instrument the " aperture will be contracted.

" The stretching instrument may be actuated by means of a " rack and pinion motion, which is the most convenient con- " trivance for the purpose, but other means may be employed " for effecting the object, if preferred."

[Printed, 6d. Drawing.]

A.D. 1859, November 8.—N° 2541.

JOHNSON, JOHN HENRY.—(*A communication from Auguste Pinard.*) — (*Provisional protection only.*) — " Improvements in " ' passe-partouts ' or mounts for pictures."

The said mounts may be used " for photographic and other " pictures."

" According to this invention in place of making the ' passe- " ' partout ' or mount out of one piece of cardboard stamped to " the desired pattern, it is proposed to construct it of three " distinct parts suitably colored or tinted, and disposed in

“ relation to each other to give the effect of a solid mount with
“ a considerable degree of relief. The inner rim of the mount
“ next to the picture consists of a suitably stamped or moulded
“ frame of cardboard or thin metal, and may be tinted, bronzed,
“ or left plain as desired. Upon this rim is laid a flat piece of
“ cardboard, having an aperture of such a size as to enclose the
“ moulding of the rim, and this second piece may either be plain
“ or ornamented, or tinted according to taste; over this again is
“ placed a third sheet of cardboard, the aperture in which is large
“ enough to show a considerable portion of the second piece last
“ referred to. It is obvious that the apertures may be of any
“ desired form, whether round, square, or oval, and that the
“ tints and ornamentation of each of the three component parts
“ may be varied according to taste.”

[Printed, 4d. No Drawings.]

•

INDEX OF SUBJECT MATTER.

[The numbers refer to the pages in which the Abridgments commence.
The names printed in *Italic* are those of the persons by whom the
inventions have been communicated to the Applicants for Letters Patent.
The Roman numerals refer to the Introduction.]

Absorption of chemical rays :

Miller, xv.

Acetate of baryta (*barium acetate*) :

Palmer, 159 (*Appendix*).

Acetate of copper (*copper acetate*) :

Palmer, 159 (*Appendix*).

Acetate of lead (*lead acetate*) :

Palmer, 159 (*Appendix*).

Acetate of potash (*potassium acetate*) :

Palmer, 159 (*Appendix*).

Acetate of soda (*sodium acetate*) :

Palmer, 159 (*Appendix*).

Lea, xxi.

Acetic acid (*hydric acetate*) :

Fontainemoreau (*Truchelut*), 99.

Acid prussiate of potash (*potassium ferri-cyanide*) :

Brooman (*Baudesson and Houzeau*), 100.

Actinic power (measuring) :

Bing, 149.

Actinic quality of the atmosphere at a high elevation :

Smyth, xviii.

Albumen :

Joubert (*Garnier*), 2.

Joubert, xv.

Brooman (*Moreau*), 48.

Sutton, 61.

Mennons (*Plessy*), 62.

Clark (*Toissonière*), 69.

Clark (*Poittevin*), 73.

Albumen—*cont.*

Woodbury, 97.

Wortley and Vernon (*Wothly*), 98.

Newton (*De Montgolfier*), 123.

Skinner, 131.

Grüne, 142.

Grüne, 151.

Courtenay, 155.

Albums (photographic) :

Gillett, 19.

Pohl (*Luz*), 23.

Smith, 28.

Clark (*Marion*), 33.

Bourquin, 33.

Brooman (*Marion*), 34.

Brooman (*Strauss*), 36.

Schloss (*Schloss*), 38.

Schottlander, 40.

Brooman (*Saugrin*), 41.

Carter, 46.

Forestier, 54.

Bourquin, 60.

Gedge (*Abelous*), 87.

Gedge (*Abelous*), 88.

McFarland (*Spooner*), 146.

Alcohol :

Griswold, 129.

Alloys (photo-spectra of) :

Miller, xv.

Alum (*aluminic potassium sulphate*) :

Palmer, 159 (*Appendix*).

Clark (*Poittevin*), 73.

Woodbury and Davies, 132.

Aluminum, salts of. *See*,

Alum.

Ammonia (*ammonium hydrate*) :

England, xxiv.

Despratz, xxiv.

Grüne, 151.

"Ammoniacal citrate of iron" :

Brooman (*Dupuy*), 53.

Bichromate of potash—*cont.*

- Winstanley, 133.
- Gilpin (*Kossuth and Kossuth*), 135.
- Henry (*Avet*), 138.
- Dallas, 144.
- Courtenay, 155.
- Winstanley, 157.

Binocular instruments :

- Claudet, xii.

Binocular lustre :

- Brewster, xiv.

Binocular vision :

- Rogers, xi.

" Binographs " :

- Pettitt, 110.

Bismuth (photo-spectrum of) :

- Miller, xv.

Bisulphide of carbon (*carbonic di-sulphide*) :

- Lewis, 29.

Boracic acid (*boracic trioxide*) :

- Palmer, 159 (*Appendix*).

Borax (*sodium bi-borate*) :

- Palmer, 159 (*Appendix*).

Bromide of cadmium (*cadmium bromide*) :

- England, xxiv.
- Despratz, xxiv.

Bromine :

- Wells, 121.

Bromo-iodized collodion :

- Sutton, xvii.
- England, xxiv.
- Despratz, xxiv.

Cadmium (photo-spectrum of) :

- Miller, xv.

Cadmium, salts of. *See*,

Bromide of cadmium.

Chloride of cadmium.

Calcium, salts of. *See*,

Chloride of calcium.

Cameras (photographic) :

- Swan, 5.
- Knight (*Korn*), 15.
- Williams, 16.
- Macfarlane, 17.

Cameras (photographic)—*cont.*

- Clark (*Anthony*), 20.
- Pallu, 22.
- Sutton, 30.
- Grisdale, 44.
- Mann, 45.
- Brooman (*Farreno*), 49.
- Haseltine (*Wilson*), 51.
- Gruner, 54.
- Johnson and Harrison, 56.
- Clark (*Blot*), 66.
- Ceileur, 73.
- Ludeke, 77.
- Whipple, 80.
- Fontainemoreau (*Liébert and Lafon-Saint-Cyr*), 86.
- Prout, 114.
- Rowland, 115.
- Newton (*Jaubert*), 136.

Carbon photographs :

- Brooman (*Fargier and Charavet*), 25.
- Clark (*Poitevin*), 73.
- Swan, 88.
- Swan, 120.

Carbonate of ammonia (*ammonic carbonate*) :

- Spiller, xxiii.

Carbonate of soda (*sodic carbonate*) :

- England, xxiv.
- Despratz, xxiv.

Celestial photography (preparing photographs of the celestial bodies) :

- Draper, xii.
- De la Rue, xiv, xv, xix, xx, xxi.

Chemical action of sunlight (determination of the relative amount of) :

- Bunsen and Roscoe, xvii.
- Roscoe and Baxendell, xxii.

Chemical brightness of various portions of the sun's disc :

- Roscoe, xviii.

Chloride of ammonium (*ammonium chloride*) :

- Clark (*Teissonière*), 69.
- Griswold, 129.

Chloride of cadmium (*cadmium chloride*) :

- Smith, 116.

Chloride of calcium (*calcium chloride*):

Griswold, 129.

Chloride of gold (*gold tri-chloride*):

Eidlitz, 8.

Fontainemoreau (*Truchelut*), 99.

Smith, 116.

Grüne, 154.

Chloride of platinum (*platinic chloride*):

Grüne, 154.

Chloride of silver (*argentic chloride*):

As a sensitising medium;

Bunsen and Roscoe, xvii.

To remove phosphate of silver;

Newton (*De Montgolfier*), 123.

Chloride of sodium (*sodium chloride*):

Clark (*Teissonnière*), 69.

Chromate of copper (*cupric chromate*):

Willis, 102.

Chrome alum (*aluminic chromium sulphate*):

Swan, 158.

Chromic acid (*chromium tri-oxide*):

Willis, 102.

Chromium, salts of. *See*,

Chrome alum.

Sulphate of the sesqui-oxide of chromium.

"Chromo-stereoscope":

Cassaignes, 63.

Cassaignes, 75.

Citrate of ammonia and iron (*ammonic iron citrate*):

Brooman (*Baudesson and Housson*), 100.

cloth, r⁺

images on:

'Truchelut',

Collodio-albumen process:

Petschler and Mann, xii.

Collodion:

Cornides, 160 (*Appendix*).

Pont, 161 (*Appendix*).

Clark (*Anthoni*), 20.

Brooman (*Fargier and Charavet*), 25.

Dixon, 26.

Hooman and Maliszewski, 27.

Haseltine (*Wilson*), 51.

Brooman (*Maréchal and Du Motay*), 90.

Wortley and Vernon (*Wothli*), 98.

Fontainemoreau (*Truchelut*), 99.

Smith, 114.

Henry (*Avet*), 122.

Griswold, 129.

Grüne, 154.

Copper, salts of. *See*,

Acetate of copper.

Chromate of copper.

Phosphate of copper.

Sulphate of copper.

Corrosive sublimate (*mercuric chloride*):

Palmer, 159 (*Appendix*).

Newton (*Eutherford and Steele*), 6.

Brooman (*Du Motay and Maréchal*), 113.

Griswold, 129.

Grüne, 142.

Grüne, 151.

Courtenay, 155.

Crayon or other drawings, cartes de visite similar to:

Sarony, 88.

Sarony, 92.

Cyanide of potassium (*potassium cyanide*):

Palmer, 159 (*Appendix*).

Brooman (*Dupuy*), 53.

Griswold, 129.

England, xxiv.

Despratz, xxiv.

Cyanide of sodium (*sodium cyanide*):

Palmer, 159 (*Appendix*).

Damp collodion process:

Clark (*Anthoni*), 20.

Gruner, 54.

Brooman (*De Lafarge*), 58.

Brooman (*De Lafarge*), 72.

- Dextrine :**
Pont, 161 (*Appendix*).
- Di-actinic power :**
Miller, xv.
- Diaphragms for cameras :**
Maugéy, 164 (*Appendix*).
- Distorted photographic pictures :**
Brooman (*Farrenc*), 49.
- "Double ground," producing photographic portraits in :**
Crozat, 103.
- Drawings (photographic copies of) :**
Brooman (*Morvan*), 43.
Fontaine, 44.
- Dry collodion process :**
Gruner, 54.
Sutton, xvii.
England, xxiv.
Despratz, xxiv.
- Electric light (using for photographic purposes) :**
Henry (*Tournachon, called Nadar*), 24.
Morris, Weare, and Monckton, 49.
- Electro-telegraphy (photography applied to) :**
Clark (*De Susini, Tamin, and Bondonneau*), 151.
- Embossing photographs :**
Dixey and Smith, 57.
Bentley and Bailey, 109.
- Enamelled glass plates used in photography :**
Helsby, 108.
- Enamelled photographs :**
Joubert (*Garnier*), 2.
Joubert, xv.
Martius (*Obernether*), 104.
Grainger and Girdler, 117.
- Envelopes for containing photographs :**
Schloss (*Schloss*), 39.
Schott, 96.
- Extracting the silver from the albumenised coating of an ordinary finished print :**
Spiller, xxiii.
- Fixing agents, testing for them and removing them from photographs :**
Reissig (*Reissig*), 112.
Hart, xxiii.
- Fluoride of potassium (*potassium fluoride*) :**
Palmer, 159 (*Appendix*).
- Fluoride of sodium (*sodium fluoride*) :**
Palmer, 159 (*Appendix*).
- Forgery, the prevention of (photography applied to) :**
Seropyan, 162 (*Appendix*).
Brooman (*Eidlitz*), 2.
- Frames or cases for containing photographic pictures :**
Gedge (*Pointeau*), 161 (*Appendix*).
Brown, 23.
Clark (*Julien*), 52.
Prang, (*Roberts*), 90.
Lane, 98.
- Gallic acid (*hydric gallate*) :**
Fontaine, 44.
Fontainemoreau (*Truchelut*), 99.
- Gases (photo-spectra of) :**
Miller, xv.
- Gaslight (using for photographic purposes) :**
Henry (*Tournachon, called Nadar*), 24.
Stewart, xix.
- Gelatine :**
Palmer, 159 (*Appendix*).
Eidlitz, 8.
Beatty and Alexander, 18.
Brooman (*Fargier and Charavet*), 25.
Lewis, 29.
James, xii.
Fontaine, 44.
Clark (*Poitevin*), 73.
Swan, 88.
Woodbury, 97.
Brooman (*Du Motay and Maréchal*), 113.
Smith, 116.

Gelatine—cont.

- Newton (*Leggo and Desbarats*), 118.
 Swan, 120.
 Henry (*Acet*), 122.
 Lea, xxi.
 Hughes, xxi.
 Skinner, 131.
 Woodbury and Davies, 132.
 Winstanley, 133.
 Gilpin (*Kossuth and Kossuth*), 135.
 Henry (*Acet*), 136.
 Ashton, 139.
 Woodbury, 144.
 Dallas, 144.
 Woodbury, 148.
 Courtenay, 155.
 Winstanley, 157.
 Swan, 158.

Glycerine :

- Martius (*Obernetter*), 104.
 Grüne, 154.

Glycocine :

- Cherrill, xxi.

**Gold, salts of. See,
Chloride of gold.****Grotesque photographs :**

- De Briges, 152.

Gum arabic :

- Fontaine, 44.
 Sutton, xvii.
 Brooman (*Marquier*), 59.
 Toovey, 76.
 Martius (*Obernetter*), 104.
 Swan, 158.

"Heliautograph :"

- Selwyn, xvi.

Heliographic printing :

- Beatty and Alexander, 18.

Heliography (preparing photographs of the sun) :

- De la Rue, xiv.
 De la Rue, xv.
 Selwyn, xvi.
 Stewart and De la Rue, xix.
 De la Rue, xx.
 Secchi, xx.
 De la Rue, Stewart, and Loewy, xx.
 De la Rue, Stewart, and Loewy, xxi.

Honey :

- Joubert (*Garnier*), 2.
 Joubert, xv.
 Smith, 118.

Hydrochloric acid (*hydric chloride*) :

- Newton (*Rutherford and Steele*), 6.
 Clark (*Poitavin*), 73.
 Griswold, 129.

Hypochlorite of soda (*sodium hypochlorite*) :

- Hart, xxiii.

Hypophosphorous acid (*hydric hypophosphite*) :

- Newton (*De Montgolfier*), 123.

Hyposulphite of soda (*sodium hyposulphite*) :

- As a developing medium ;
 De la Rue, xv.
 Brooman (*Dupuy*), 53.
 Bunsen and Roscoe, xvii.
 Grüne, 142.
 Courtenay, 155.
 As a fixing agent ;
 Pont, 161 (*Appendix*).
 Fontainemoreau (*Truchelut*), 99.
 Newton (*De Montgolfier*), 123.
 Griswold, 129.
 Grüne, 142.
 Grüne, 154.
 To extract silver from a finished print ;
 Spiller, xxiii.

Indelible photographs :

- Brooman (*Maréchal and Du Motay*), 90.

Inked, photographic images capable of being :

- Brooman (*Du Motay and Maréchal*), 113.

Inserting photographs into albums, instruments for :

- Carter, 46.
 Murray, 75.
 Watson, 79.

Instantaneous pictures ;

- Sutton, 30.
 Mann, 45.

Intaglio, surfaces in (produced by the aid of photography) :

- Woodbury, 97.
 Dallas, 144.
 Courtenay, 155.
 Winstanley, 157.

Invisible photographs :

- Grüne, 142.
 Grüne, 151.

Iodide of silver (*silver iodide*) :

Used as a sensitising solution ;
Brooman (*Morvan*), 43.

Iodine :

Smith, 116.
Wells, 121.

" Iodites " [iodides?] " of
ammonia and potassium " :

Fontainemoreau (*Truchelut*), 99.

Iron developer :

Lea, xxi.
Hughes, xxi.
Cherrill, xxi.

Iron (photo-spectrum of) :

Miller, xv.

Iron, salts of. *See*,

" Ammoniacal citrate of
iron."

Citrate of ammonia and iron.

Iron developer.

Oxalate of ammonia and iron.

Perchloride of iron.

Sulphate of iron.

Tannate of iron.

Tartrate of ammonia and
iron.

Lead, salts of. *See*,

Acetate of lead.

Nitrate of lead.

Lenses (for use in photographic
cameras) :

Brooman (*Harrison*), 15.
Knight (*Korn*), 15.
Dallmeyer, 101.
Bünger (*Steinheil*), 125.
Dallmeyer, 134.
Newton (*Jaubert*), 136.
Wray, 140.
Dallmeyer, 146.
Dallmeyer, 150.

Logwood :

Fox, 102.

" Loxodrograph " :

Brooman (*Corradi*), 63.

Lunar photography :

De la Rue, xiv.

Magnesium light (using for
photographic purposes) :

Roscoe, xix.
Carlevaris, 119.
Parker (*Carlevaris*), 130.

Magnesium (photo - spectrum
of) :

Miller, xv.

Magnified pictures of micro-
scopic objects :

Eden, 86.

Manganese (photo-spectrum
of) :

Miller, xv.

Maps (photographic copies of) :

James, xiv.
Brooman (*Morvan*), 43.

Margin or border to photo-
graphs :

Woodbury and Davies, 132.
Hedler, 143.

Measuring the chemical action
of the sun's rays :

Phipson, xviii.

Measuring the relative sensi-
tiveness of photographic
papers :

M'Dougall, xx.

Mercury :

Wells, 121.

Mercury salts of. *See*,

Corrosive sublimate.

Perchloride of mercury.

Metal, photographs on :

Wells, 121.

Meteorological registration of
the chemical action of total
daylight :

Roscoe, xx.

Mica used as the basis of collo-
dion negatives :

Davies (*Eisler*), 82.

Micrometers (photographic) :

Brewster, xiii.

" Microphore " :

Ségoffin, 41.

Micro-photographs :

Dancer, xi.
 Sidebotham, xi.
 Shadbolt, xi.
 Neville, 29.
 Mennons (*Bouillette and Hyvelin*), 37.
 Bliss and Lamplough, 42.
 Heisch, xvi.
 Eden, 65.
 Bonelli and Cook, 78.
 Bonelli, 118.
 Newton (*Jaubert*), 136.

Microscopes to exhibit photographs :

Dagron, 7.
 Dagron, 31.
 Mennons (*Bouillette and Hyvelin*), 37.

Microscopic photographs magnified :

Neville, 29.

Moitessier's method of obtaining positives :Henry (*Tournachon called Nadar*), 24.**Mounting photographs :**

Johnson (*Pinard*), 164 (*Appendix*).
 Harrington and Perkins, 48.
 Bourquin, 60.
 Helsby, 81.
 Lee and Thomson (*Mouat*), 85.
 Fruwirth, 95.
 Gye (*Strelisky*), 107.
 Smith, 114.
 Medd, 152.

Neomonoscope :

Beau, 8.

Nitrate of lead (lead nitrate) :Palmer, 159 (*Appendix*).**Nitrate of potash (potassium nitrate) :**

Macaire, 12.

Nitrate of silver (argentic nitrate) :

As a sensitising medium ;
 Pont, 161 (*Appendix*).
 Macaire, 12.
 Clark (*Anthony*), 20.
 Pallu, 22.

Nitrate of silver—cont.

Dixon, 26.
 Brooman (*Morvan*), 43.
 Haseltine (*Wilson*), 51.
 Bunsen and Roscoe, xvii.
 Wortley and Vernon (*Wothlij*), 98.
 Fontainemoreau (*Truchelut*), 99.
 Smith, 116.
 Newton (*De Montgolfier*), 123.
 Griswold, 129.
 Grüne, 154.

Nitrate of uranium (uranium nitrate) :Wortley and Vernon (*Wothlij*), 98.**Oil of lavender and asphaltum :**

Used as a sensitising medium ;
 Lewis, 29.

Opal photographic surfaces :

Griswold, 129.

Optics (photographic) :

Claudet, xxiv.

Ordnance maps (photographic copies of) :

James, xiv.

Ornamenting photographs :

Smith (*Lissagaray*), 51.
 Pettitt, 110.

Ornamenting surfaces (application of photography to) :

Amphlet, 35.
 Amphlet, 59.
 Woodbury, 138.
 Grüne, 154.
 Ashton, 159.

Oxalate of ammonia and iron (ammonic iron oxalate) :Brooman (*Baudesson and Houzeau*), 100.**Oxalate of potash (potassium oxalate) :**Palmer, 159 (*Appendix*).**Oxalate of soda (sodium oxalate) :**Palmer, 159 (*Appendix*).**Palladium, salts of. See, Proto-chloride of palladium.****Panoramic lens :**

Sutton, xiv.

Panoramic pictures :

Johnson and Harrison, 56.
Chevallier, 105.
Prout, 114.
Rowland, 115.

Paper (photographic) :

Henry (*Obert, Vasseur, and Houbigant*), 11.
Sutton, 61.
Mennons (*Plessey*), 62.
Brinckerhoff, 123.
Newton (*De Montgolfier*), 123.
Newton (*Gibson*), 124.
Skinner, 131.
Swan, 158.

Paper photographs :

For transference to wood, porcelain, and other surfaces;
Brooman (*Dupuy*), 53.

In general;
Mann, 45.
Brooman (*Dupuy*), 53.
Clark (*Poitevin*), 73.
Brinckerhoff, 123.
Ashton, 139.
Grüne, 142.

Perchloride of iron (*ferric chloride*) :

Fontaine, 44.
Clark (*Poitevin*), 73.

Perchloride of mercury (*mercuric chloride*) :

Clark (*Poitevin*), 73.

Permanence given to photographs :

Pettitt, 110.

Peroxide of hydrogen (*hydric peroxide*) :

Smith, xxiii.

Phenakistoscopes :

In general;
Shaw, 9.
Shaw, xiii.
Bonelli and Cook, 78.
Claudet, xxi.
Plateau, xxi.
Bonelli, 118.

Preparation of photographs for;
Du Mont, 27.
Bonelli and Cook, 78.

Phosphate of soda (*rhombic phosphate of sodium*) :

Taylor, xxiii.

Phosphates of copper (*hydric copper phosphate*) :

Willis, 102.

Phosphates, alkaline :

Newton (*De Montgolfier*), 123.

Phosphites, alkaline :

Newton (*De Montgolfier*), 123.

Phosphoric acid (*tri-hydric phosphate*) :

Willis, 102.
Newton (*De Montgolfier*), 123.

Phosphorous acid (*hydric phosphite*) :

Newton (*De Montgolfier*), 123.

Photo-electrotypes :

Newton (*Leggo and Desbarats*), 118.

Photogenic pictures :

Clark (*Teissonnière*), 69.

Photographic transparency :

Miller, xv.

Photo-sculpture :

Clark (*Willème*), 69.
Claudet, xix.
Willème, xix.
Claudet, 105.
Gay, 110.
Newton (*Jaubert*), 138.

Photozincography :

James, xiv.
Toovey, 76.

Picric acid (*hydric picrate*) :

Applied to paper photographs to prevent the reproduction of photographic pictures;
Newton (*White and Alden*), 87.

Plate holder (photographic) :

Debenham, 38.
Pegram, 79.

Platinum, salts of. *See*, Chloride of platinum.

"Polyograph" :

Knight (*Korn*), 15.

Portraits (photographic); produced with a frame :

Laroche, 139.

Portraits (photographic); producing them in "double ground," and producing "a shaded bust terminated in white":

Crozat, 103.

Potash (*potassium hydrate*):

Brooman (*Marquier*), 59.

Potassium, salts of. *See*,

Acetate of potash.

Acetate prussiate of potash.

Alum.

Bi-carbonate of potash.

Bi-chromate of potash.

Cyanide of potassium.

Fluoride of potassium.

"Iodites of ammonia and potassium."

Nitrate of potash.

Oxalate of potash.

Prussiate of potash.

Sulphate of potash.

Sulpho-cyanide of potassium.

Pressure frame:

Lane, 187.

Preventing the reproduction of photographs:

Newton (*White and Alden*), 87.

Printing ink used to obtain photographic proofs:

Asser, 4.

Printing (photographic):

Pont, 161 (*Appendix*).

Flounders, 13.

Hooman and Maliszewski, 27.

Woodbury and Davies, 132.

Taylor, xxiii.

Field, 147.

Lane, 187.

Printing surfaces produced by the aid of photography:

Asser, 4.

Eidlitz, 8.

Dalglish, 17.

Beatty and Alexander, 18.

Lewis, 29.

Fontaine, 44.

Newton (*Schulze and Billing*),

61.

Printing surfaces, &c.—*cont.*

Pouncy, 70.

Toovey, 76.

Swan, 120.

Henry (*Avet*), 132.

Bullock and Bullock, 126.

Newton (*Von Egloffstein*), 127.

Winstanley, 133.

Gilpin (*Kossuth and Kossuth*),

135.

Henry (*Avet*), 136.

Dallas, 144.

Southwell, Southwell, and

Southwell, 145.

Woodbury, 148.

Courtenay, 155.

Ashton, 159.

Protecting and preserving photographic prints:

Polyblank, 35.

Proto-chloride of palladium (*palladious chloride*):

Used to darken collodion negatives;

Draper, xii.

Prussiate of potash (*potassium ferro-cyanide*):

Brooman (*Baudesson and Houzeau*), 100.

Prussiates of ammonia (*ammonium ferro-cyanide* and *ammonium ferri-cyanide*):

Brooman (*Baudesson and Houzeau*), 100.

Pyrogalllic acid (*hydric pyrogallate*):

Fontaine, 44.

Brooman (*Maréchal and Du Motay*), 90.

"Pyrrol bases":

Willis, 102.

Reduced photographs. *See* Micro-photographs.

Reflection of chemical rays:

Miller, xv.

Registering apparatus (photographic):

Sabine, xii, xiii.

Goddard, xiv.

Stewart, xiv.

Sabine, xv.

Brooman (*Corradi*), 62.

Airy, xvii.

Registering apparatus, &c. —
cont.

Brooke, xvii.
Sabine, xvii.
Stewart, xviii.
Airy, xviii.
Capello, and Stewart, xix.
Stewart, xix.
De la Rue, xix.
Sabine, xxii.
Chambers, xxii.
Sabine, xxiii.

Regulating the light used for
taking photographic por-
traits :

McLachlan, 47.

Relievo, surfaces in (produced
by the aid of photography) :

Woodbury, 87.
Dallas, 144.
Courtenay, 155.
Winstanley, 157.

Resinised plates :

England, xxiv.
Despratz, xxiv.

Rests for use in taking photo-
graphic portraits :

Sarony, 128.

Rolling presses for paper photo-
graphs :

Bourquin, 77.
Gittens, 91.
Wortley and Vernon (*Worthley*),
98.
Bentley and Bailey, 109.

"Sal soda" :

Newton (*Rutherford and
Steele*), 6.

Sensitising by washing in
water :

Petschler and Mann, xii.

Shellac :

Taylor, xxiii.

Siliceous substances, photo-
graphic pictures on :

Brooman (*Maréchal and Du
Motay*), 90.

Silver (photo-spectrum of) :

Miller, xv.

P.H.

Silver, salts of. *See*,
Chloride of silver.
Iodide of silver.
Nitrate of silver.

Silver, "soaps" of :

Brooman (*Du Motay and Maré-
chal*), 113.

Sodium, salts of. *See*,
Acetate of soda.

Borax.

Carbonate of soda.
Chloride of sodium.
Cyanide of sodium.
Fluoride of sodium.
Hypochlorite of soda.
Hyposulphite of soda.
Oxalate of soda.
Phosphate of soda.
"Sal soda."
Sulphate of soda.

Solar cameras, to produce en-
larged pictures from small
negatives :

Claudet, xii.
Woodward, xii.
Fontainemoreau (*Liébert and
Lafon-Saint-Cyr*), 86.
Bonneville (*Van Monckhoven*),
89.

Solar eclipse (photographs of) ;

De la Rue, xv.
De la Rue, xx.
Secchi, xx.

Spectra obtained by means of
the electric spark (photo-
graphic effects of) :

Miller, xv.

Stands for cameras :

Williams, 16.

Stellar photography :

De la Rue, xiv.

Stereo-micro-photographs :

Heisch, xvi.

Stereoscopes :

Combined with album ;
Brooman (*Saugrin*), 41.

M

Stereoscopes—cont.

Combined with slide box;

Spiller, 163 (*Appendix*).

Gibbons, 21.

Gengembre, 142.

Combined with the phenakistoscope;

Desvignes, 3.

Bonelli, 118.

Shaw, 129.

Shaw, xiii.

Claudet, xxi.

Plateau, xxi.

Folding;

Gibbons, 21.

Rieder, 91.

For enlarged views;

Swan, 6.

Panoramic;

Czujajewicz, 1.

Producing coloured effects in;

Hirst and Wood, 50.

Russell, 53.

Cassaignes, 63.

Cassaignes, 75.

Cassaignes, 82.

Gould, 149.

With a hinged partition;

Rowse, 84.

With a mirror;

Russell, 53.

Russell, 63.

Desvignes, 83.

Baggs, 131.

Stereoscopic pictures :

In general;

Desvignes, 3.

Swan, 6.

Clark (*Anthony*), 20.

Mello, 20.

Brooman (*Farrenc*), 49.

Heisch, xvi.

Combined with glass prisms;

Swan, 66.

Stereotype :

Shaw, xiii.

Substitute for nitrate of silver :

Macaire, 12.

Sugar :

Swan, 88.

Woodbury, 97.

Martius (*Obernatter*), 104.

Courtenay, 155.

Sulphate of copper (cupric sulphate) :

Palmer, 159 (*Appendix*).

Eidlitz, 8.

Fox, 102.

Sulphate of iron (ferrous sulphate) :

As a developing medium;

Clark (*Anthony*), 20.

Brooman (*Maréchal and Du Motay*), 90.

Grüne, 154.

As a means of precipitating iron tannate;

Clark (*Teissonière*), 69.

To render gelatine insoluble;

Palmer, 159 (*Appendix*).

"Sulphate of molybdic acid;"

Used as a test for the amount of

actinic power;

Phipson, xviii.

Sulphate of potash (potassium sulphate) :

Palmer, 159 (*Appendix*).

Sulphate of soda (sodium sulphate) :

Palmer, 159 (*Appendix*).

Sulphate of the sesquioxide of chromium :

Swan, 158.

Sulphocyanide of ammonium (ammonium sulphocyanide) :

Brooman (*Baudesson and Houzeau*), 100.

Smith, 116.

Sulphocyanide of potassium (potassium sulphocyanide) :

Brooman (*Baudesson and Houzeau*), 100.

Sulphuric acid (hydric sulphate) :

Willis, 102.

Lea, xxi.

Grüne, 154.

Sulphuro-gelatine :

Hughes, xxi.

"Sunshine recorder" (photographic) :

Goddard, xiv.

Tannate of iron (iron tannate) :

Clark (*Teissonière*), 69.

Tannin :

Clark (*Poitevin*), 73.

Brooman (*Baudesson and Houzeau*), 100.

- Tartaric acid (*hydrate tartrate*) :
 Newton (*Rutherford and Steele*), 6.
 Clark (*Poitevin*), 73.
 Smith, 116.
- Tartrate of ammonia and iron (*ammonic iron tartrate*) :
 Brooman (*Baudesson and Houzeau*), 100.
- Tellurium (photo-spectrum of) :
 Miller, xv.
- Thallium (photo-spectrum of) :
 Miller, xv.
- Tickets, railway and other (photography applied to) :
 Grisdale, 32.
- Tinting photographs by lithographic printing :
 Dixey and Smith, 57.
- Toning photographs :
 Newton (*Rutherford and Steele*), 6.
 Smith, 116.
- Transferring photographs to stone or zinc :
 Brooman (*Marquier*), 59.
 Pouncy, 70.
- Transparency (photographic) of various bodies :
 Miller, xv.
- Trichromates, alkaline (*alkaline di-anhydro-chromates*) :
 Brooman (*Du Motay and Maréchal*), 113.
- Turpentine and bisulphide of carbon :
 Used as a fixing agent ;
 Lewis, 29.
- Uranium, salts of. *See*,
 Nitrate of uranium.
- Varnish for photographs :
 Perkins, 67.
 Rollason, 95.
- Vessels for photographic purposes :
 Knight, 25.
- Washing photographs :
 Garnett, 47.
 Grisdale, 93.
- Watch for photographic purposes :
 Johnson, 64.
- Waxed surfaces for photographs :
 Woodbury and Davies, 132.
- Wood, a medium for receiving photographs :
 Brooman (*Dupuy*), 53.
 Amphlet, 59.
 Pouncy, 70.
 Smith, 116.
 Woodbury, 144.
- " Wothlytype " :
 Wortley and Vernon (*Wothly*), 93.
- Zinc (photo-spectrum of) :
 Miller, xv.

ERRATUM IN PART I.

Since the publication of the first volume of the present series of Abridgments the following erratum has been discovered therein:—

Page 8, line 26, *for* "Walcott" *read* "Wolcott."

ERRATA IN PART II.

Page 72, line 15, *for* "Lefarge" *read* "Lafarge."

Page 148, line 19, *for* "No. 2338" *read* "No. 2338, A.D. 1864."

LONDON:

Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE.
Printers to the Queen's most Excellent Majesty.



PATENT LAW AMENDMENT ACT, 1852.

LIST OF WORKS printed by order of THE COMMISSIONERS OF PATENTS FOR INVENTIONS, and sold at the PATENT OFFICE, 25, Southampton Buildings, Chancery Lane, London.

I.

1. SPECIFICATIONS of PATENTS for INVENTIONS, DISCLAIMERS, &c., enrolled under the Old Law, from A.D. 1617 to Oct. 1852, comprised in 13,561 Blue Books, or 691 thick vols. imp. 8vo. Total cost price about 600*l*.
2. SPECIFICATIONS of INVENTIONS, DISCLAIMERS, &c., deposited and filed under the Patent Law Amendment Act from Oct. 1, 1852, to Dec. 31, 1870, comprised in 59,025 Blue Books, or 1,842 thick vols. imp. 8vo. Total cost price, about 1,848*l*.

II.

1. CHRONOLOGICAL INDEX of PATENTS of INVENTION from A.D. 1617 to Oct. 1852. 2 vols. (1554 pages). Price 30*s*. By Post, 33*s*. 2*d*.
ALPHABETICAL INDEX for the above period. 1 vol. (647 pages). Price 20*s*. By Post, 21*s*. 5*d*.
SUBJECT-MATTER INDEX for the above period. 2 vols. (907 pages). Second Edition. 1857. Price 2*l*. 16*s*. By Post, 2*l*. 18*s*. 8*d*.
REFERENCE INDEX for the above period, pointing out the Office in which each enrolled Specification may be consulted; the Books in which Specifications, Law Proceedings connected with Inventions, &c. have been noticed. 1 vol. (710 pages). Second Edition. 1862. Price 30*s*. By Post, 31*s*. 5*d*.
APPENDIX to REFERENCE INDEX, containing abstracts from such of the early Patents and Signet Bills as describe the nature of the Invention. 1 vol. (91 pages). Price 4*s*. By Post, 4*s*. 6*d*.

2. CHRONOLOGICAL INDEXES of APPLICATIONS for PATENTS and PATENTS GRANTED from Oct. 1 to Dec. 31, 1852, and for the year 1853. 1 vol. (258 pages). Price 11s. By Post, 12s.
ALPHABETICAL INDEXES for the above periods. 1 vol. (181 pages). Price 13s. By Post, 13s. 8d.
SUBJECT-MATTER INDEX for 1852. 1 vol. (132 pages). Price 9s. By Post, 9s. 7d.
SUBJECT-MATTER INDEX for 1853. 1 vol. (291 pages). Price 16s. By Post, 16s. 11d.
3. CHRONOLOGICAL INDEX for 1854. 1 vol. (167 pages). Price 6s. By Post, 6s. 7d.
ALPHABETICAL INDEX for 1854. 1 vol. (119 pages). Price 7s. By Post, 7s. 7d.
SUBJECT-MATTER INDEX for 1854. 1 vol. (311 pages). Price 16s. 6d. By Post, 17s. 6d.
4. CHRONOLOGICAL INDEX for 1855. 1 vol. (188 pages). Price 6s. 6d. By Post, 7s. 2d.
ALPHABETICAL INDEX for 1855. 1 vol. (129 pages). Price 7s. 6d. By Post, 8s. 1d.
SUBJECT-MATTER INDEX for 1855. 1 vol. (311 pages). Price 17s. By Post, 17s. 11d.
5. CHRONOLOGICAL INDEX for 1856. 1 vol. (189 pages). Price 6s. 6d. By Post, 7s. 1d.
ALPHABETICAL INDEX for 1856. 1 vol. (143 pages). Price 8s. By Post, 8s. 7d.
SUBJECT-MATTER INDEX for 1856. 1 vol. (535 pages). Price 18s. 6d. By Post, 19s. 7d.
6. CHRONOLOGICAL INDEX for 1857. 1 vol. (196 pages). Price 6s. 6d. By Post, 7s. 2d.
ALPHABETICAL INDEX for 1857. 1 vol. (153 pages). Price 8s. By Post, 8s. 8d.
SUBJECT-MATTER INDEX for 1857. 1 vol. (367 pages). Price 19s. 6d. By Post, 20s. 8d.
7. CHRONOLOGICAL INDEX for 1858. 1 vol. (188 pages). Price 6s. By Post, 6s. 8d.
ALPHABETICAL INDEX for 1858. 1 vol. (148 pages). Price 8s. By Post, 8s. 7d.
SUBJECT-MATTER INDEX for 1858. 1 vol. (360 pages). Price 19s. 6d. By Post, 20s. 6d.
8. CHRONOLOGICAL INDEX for 1859. 1 vol. (196 pages). Price 6s. 6d. By Post, 7s. 1d.
ALPHABETICAL INDEX for 1859. 1 vol. (188 pages). Price 10s. By Post, 10s. 7d.
SUBJECT-MATTER INDEX for 1859. 1 vol. (381 pages). Price 20s. By Post, 20s. 11d.

9. CHRONOLOGICAL INDEX for 1860. 1 vol. (209 pages).
 Price 7s. By Post, 7s. 7d.
 ALPHABETICAL INDEX for 1860. 1 vol. (203 pages).
 Price 10s. 6d. By Post, 11s. 1d.
 SUBJECT-MATTER INDEX for 1860. 1 vol. (405 pages).
 Price 22s. By Post, 23s.
10. CHRONOLOGICAL INDEX for 1861. 1 vol. (215 pages).
 Price 7s. By Post, 7s. 7d.
 ALPHABETICAL INDEX for 1861. 1 vol. (222 pages).
 Price 10s. 6d. By Post, 11s. 2d.
 SUBJECT-MATTER INDEX for 1861. 1 vol. (442 pages).
 Price 23s. By Post, 24s. 1d.
11. CHRONOLOGICAL INDEX for 1862. 1 vol. (237 pages).
 Price 7s. 6d. By Post, 8s. 2d.
 ALPHABETICAL INDEX for 1862. 1 vol. (240 pages).
 Price 11s. 6d. By Post, 12s. 2d.
 SUBJECT-MATTER INDEX for 1862. 1 vol. (465 pages).
 Price 23s. By Post, 24s. 1d.
12. CHRONOLOGICAL INDEX for 1863. 1 vol. (220 pages).
 Price 7s. By Post, 7s. 7d.
 ALPHABETICAL INDEX for 1863. 1 vol. (218 pages).
 Price 11s. By Post, 11s. 8d.
 SUBJECT-MATTER INDEX for 1863. 1 vol. (432 pages).
 Price 22s. By Post, 23s.
13. CHRONOLOGICAL INDEX for 1864. 1 vol. (222 pages).
 Price 7s. By Post, 7s. 7d.
 ALPHABETICAL INDEX for 1864. 1 vol. (220 pages).
 Price 11s. By Post, 11s. 8d.
 SUBJECT-MATTER INDEX for 1864. 1 vol. (446 pages).
 Price 23s. By Post, 24s. 1d.
14. CHRONOLOGICAL INDEX for 1865. 1 vol. (230 pages).
 Price 7s. By Post, 7s. 7d.
 ALPHABETICAL INDEX for 1865. 1 vol. (236 pages).
 Price 11s. 6d. By Post, 12s. 2d.
 SUBJECT-MATTER INDEX for 1865. 1 vol. (474 pages).
 Price 23s. By Post, 24s. 1d.
15. CHRONOLOGICAL INDEX for 1866. 1 vol. (239 pages).
 Price 7s. By Post, 7s. 8d.
 ALPHABETICAL INDEX for 1866. 1 vol. (243 pages).
 Price 11s. 6d. By Post, 12s. 2d.
 SUBJECT-MATTER INDEX for 1866. 1 vol. (465 pages).
 Price 23s. By Post, 24s. 4d.
16. CHRONOLOGICAL INDEX for 1867. 1 vol. (254 pages).
 Price 7s. 6d. By Post, 8s. 2d.
 ALPHABETICAL INDEX for 1867. 1 vol. (258 pages).
 Price 12s. By Post, 12s. 8d.

- SUBJECT-MATTER INDEX** for 1867. 1 vol. (508 pages).
Price 25s. By Post, 26s. 2d.
- DESCRIPTIVE INDEX** (Abridgments of Provisional and Complete Specifications) for 1867.
- a. Quarter ending 31st March. 1 vol. (228 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - b. Quarter ending 30th June. 1 vol. (224 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - c. Quarter ending 30th September. 1 vol. (196 pages). Price 1s. 8d.
By Post, 2s.
 - d. Quarter ending 31st December. 1 vol. (232 pages). Price 1s. 8d.
By Post, 2s. 1d.
17. **CHRONOLOGICAL INDEX** for 1868. 1 vol. (274 pages).
Price 8s. By Post, 8s. 8d.
- ALPHABETICAL INDEX** for 1868. 1 vol. (291 pages).
Price 13s. By Post, 13s. 10d.
- SUBJECT MATTER INDEX** for 1868. 1 vol. (632 pages).
Price 30s. By Post, 31s. 5d.
- DESCRIPTIVE INDEX** (Abridgments of Provisional and Complete Specifications) for 1868.
- a. Quarter ending 31st March. 1 vol. (236 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - b. Quarter ending 30th June. 1 vol. (218 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - c. Quarter ending 30th September. 1 vol. (194 pages). Price 1s. 8d.
By Post, 2s.
 - d. Quarter ending 31st December. 1 vol. (224 pages). Price 1s. 8d.
By Post, 2s. 1d.
18. **CHRONOLOGICAL AND DESCRIPTIVE INDEX** (containing the Abridgments of Provisional and Complete Specifications) for 1869.
- a. Quarter ending 31st March. 1 vol. (226 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - b. Quarter ending 30th June. 1 vol. (234 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - c. Quarter ending 30th September. 1 vol. (200 pages). Price 1s. 8d.
By Post, 2s. 1d.
 - d. Quarter ending 31st December. 1 vol. (212 pages). Price 1s. 8d.
By Post, 2s. 1d.
- ALPHABETICAL INDEX** for 1869. 1 vol. (272 pages).
Price 13s. By Post, 13s. 9d.
- SUBJECT MATTER INDEX** for 1869. 1 vol. (587 pages).
Price 28s. By Post, 29s. 2½d.
19. **CHRONOLOGICAL AND DESCRIPTIVE INDEX** (containing the Abridgments of Provisional and Complete Specifications) for 1870.
- a. Quarter ending 31st March. 1 vol. (222 pages). Price 1s. 8d.
By Post, 2s. 1d.

d. Quarter ending 30th June. 1 vol. (218 pages). Price 1s. 8d.
By Post, 2s. 1d.

c. Quarter ending 30th September. 1 vol. (168 pages). Price 1s. 8d.
By Post, 2s.

d. Quarter ending 31st December. 1 vol. (182 pages). Price 1s. 8d.
By Post, 2s.

ALPHABETICAL INDEX for 1870. 1 vol. (242 pages).
Price 12s. By Post, 12s. 8d.

20. CHRONOLOGICAL AND DESCRIPTIVE INDEX (containing the Abridgments of Provisional and Complete Specifications) for 1871, with Indexes of Names and Subject Matter. Published in weekly numbers, price 4d. each.*

III.

ABRIDGMENTS (in Classes and Chronologically arranged) of SPECIFICATIONS of PATENTED INVENTIONS, from the earliest enrolled to those published under the Act of 1852.

These books are of 12mo. size, and each is limited to inventions of one class only. They are so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. Inventors are strongly recommended, before applying for Letters Patent, to consult the classes of Abridgments of Specifications which relate to the subjects of their inventions, and by the aid of these works to select the Specifications they may consider it necessary to examine in order to ascertain if their inventions are new.

The following series of Abridgments do not extend beyond the end of the year 1866. From that date the Abridgments have not been published in classes, but will be found in chronological order in the "Chronological and Descriptive Index" (see Section II. of this List of Works). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place the Inventor (by the aid of the Subject Matter Index for each year) can continue his examination of the Abridgments relating to the subject of his invention in the Chronological and Descriptive Index.

The classes already published are,—

1. DRAIN TILES AND PIPES, price 4d., by post 5d.
2. SEWING AND EMBROIDERING (2nd edition), price 1s. 6d., by post 1s. 9d.
3. MANURE, price 4d., by post 5d.
4. PRESERVATION OF FOOD, Part I., A.D. 1861-1855, price 4d., by post 5d.—Part II., A.D. 1856-1866, price 6d., by post 7d.
5. MARINE PROPULSION, price 1s. 10d., by post 2s. 2d.
6. MANUFACTURE OF IRON AND STEEL, Parts I., II., & III., A.D. 1621-1857, price 1s. 6d., by post 1s. 9d.—Part IV., A.D. 1857-1865 price 2s. 6d., by post 2s. 8d.
7. AIDS TO LOCOMOTION, price 6d., by post 7d.
8. STEAM CULTURE, price 8d., by post 10d.
9. WATCHES, CLOCKS, AND OTHER TIMEKEEPERS, Part I., A.D. 1661-1856, price 8d., by post 10d.—Part II., A.D. 1857-1866, price 8d., by post 9½d.

* See Notice on page 16.

10. FIRE-ARMS AND OTHER WEAPONS, AMMUNITION, AND ACCOUTREMENTS, Part I., A.D. 1858-1858, price 1s. 4d., by post 1s. 8d.—Part II., A.D. 1858-1866, price 2s. 2d., by post 2s. 6d.
11. PAPER. MANUFACTURE OF PAPER PASTEBOARD, AND PAPIER-MÂCHÉ, price 10d., by post 1s.
12. PAPER. CUTTING, FOLDING, AND ORNAMENTS; INCLUDING ENVELOPES, CARDS, PAPER-HANGINGS, &c., price 8d., by post 10d.
13. TYPOGRAPHIC, LITHOGRAPHIC, & PLATE PRINTING. Part I., A.D. 1617-1857, price 2s. 8d., by post 3s. 4d.—Part II., A.D. 1858-1861, price 2s., by post 2s. 6d.
14. BLEACHING, DYING, AND PRINTING YARNS AND FABRICS, price 3s. 4d., by post 4s. 2d.
15. ELECTRICITY AND MAGNETISM, THEIR GENERATION AND APPLICATIONS, Part I., A.D. 1766-1857, price 3s. 2d., by post 4s.—Part II., A.D. 1858-1866, price 9s. 4d., by post 9s. 10d.
16. MANUFACTURE AND APPLICATIONS OF INDIA-RUBBER, GUTTA-PERCHA, &c.; INCLUDING AIR, FIRE, AND WATER-PROOFING, price 2s. 8d., by post 3s. 4d.
17. PRODUCTION AND APPLICATIONS OF GAS, Part I., A.D. 1661-1858, price 2s. 4d., by post 3s.—Part II., A.D. 1859-1866, price 7s., by post 7s. 5d.
18. METALS AND ALLOYS, price 1s. 10d., by post 2s. 4d.
19. PHOTOGRAPHY, Part I., A.D. 1839-1859, price 8d., by post 10d.—Part II., A.D. 1860-1866, (2nd edition), price 10d., by post 1s.
20. WEAVING, Part I., A.D. 1620-1866, price 4s., by post 5s.—Part II., A.D. 1860-1866, price 2s. 8d., by post 3s. 1d.
21. SHIP BUILDING, REPAIRING, SHEATHING, LAUNCHING, &c., Part I., A.D. 1618-1860, price 2s. 4d., by post 3s.—Part II., A.D. 1861-1866, price 2s. 6d., by post 3s.
22. BRICKS AND TILES, Part I., A.D. 1619-1860, price 1s., by post 1s. 4d.—Part II., A.D. 1861-1866, price 8d., by post 9d.
23. PLATING OR COATING METALS WITH METALS, Part I., A.D. 1637-1860, price 10d., by post 1s. 2d.—Part II., A.D. 1861-1865, price 10d., by post 11d.
24. POTTERY, Part I., A.D. 1626-1861, price 10d., by post 1s.—Part II., A.D. 1862-1866, price 6d., by post 7d.
25. MEDICINE, SURGERY, AND DENTISTRY, price 3s. 4d., by post 4s.
26. MUSIC AND MUSICAL INSTRUMENTS (2nd edition), price 1s. 10d., by post 2s. 2d.
27. OILS—ANIMAL, VEGETABLE, AND MINERAL, price 6s. 6d., by post 7s.
28. SPINNING; INCLUDING THE PREPARATION OF FIBROUS MATERIALS, AND THE DOUBLING OF YARNS AND THREADS, Part I., A.D. 1624-1863, price 2s., by post 2s. 5d.—Part II., A.D. 1864-1866, price 2s. by post 2s. 4d.
29. LACE AND OTHER LOOPED AND NETTED FABRICS, price 10s., by post 10s. 8d.
30. PREPARATION AND COMBUSTION OF FUEL, price 17s., by post 17s. 9d.
31. RAISING, LOWERING, AND WEIGHING, Part I., A.D. 1617-1865, price 11s., by post 11s. 8d.—Part II., A.D. 1866, price 6d., by post 7d.
32. HYDRAULICS, price 15s., by post 15s. 10d.
33. RAILWAYS, price 5s., by post 5s. 4d.
34. SADDLERY, HARNESS, STABLE FITTINGS, &c., price 1s., by post 1s. 2d.
35. ROADS AND WAYS, price 1s., by post 1s. 2d.
36. BRIDGES, VIADUCTS, AND AQUEDUCTS, price 10d., by post 1s.
37. WRITING INSTRUMENTS AND MATERIALS, price 1s. 4d., by post 1s. 7d.
38. RAILWAY SIGNALS AND COMMUNICATING APPARATUS, price 5s. 10d., by post 6s. 2d.
39. FURNITURE AND UPHOLSTERY, price 2s., by post 2s. 4d.
40. ACIDS, ALKALIES, OXIDES, AND SALTS, price 3s. 8d., by post 4s. 4d.
41. AERONAUTICS, price 4d., by post 5d.
42. PREPARATION AND USE OF TOBACCO, price 10d., by post 1s.
43. BOOKS, PORTFOLIOS, CARD-GAMES, &c., price 10d., by post 1s.

44. LAMPS, CANDLESTICKS, CHANDELIERS, AND OTHER ILLUMINATING APPARATUS, price 2s. 6d., by post 3s.
45. NEEDLES AND PINS, price 6d., by post 7d.
46. CARRIAGES AND OTHER VEHICLES FOR RAILWAYS, price 5s. 6d., by post 6s. 5d.
47. UMBRELLAS, PARASOLS, AND WALKING STICKS, price 10d., by post 11d.
48. SUGAR, price 1s. 10d., by post 2s. 1½d.
49. STEAM ENGINE, Part I. (in two volumes), A.D. 1618-1859, price 9s. 4d., by post 10s. 10d.—Part II. (in two volumes), A.D. 1860-1866, price 4s. 10d., by post 5s. 7d.
50. PAINTS, COLOURS, AND VARNISHES, price 1s. 10d., by post 2s. 1½d.
51. TOYS, GAMES, AND EXERCISES, price 1s., by post 1s. 2d.
52. VENTILATION, price 1s. 10d., by post 2s. 0½d.
53. FARRIERY; INCLUDING THE MEDICAL AND SURGICAL TREATMENT OF ANIMALS, price 1s., by post 1s. 2d.

IV.

COMMISSIONERS of PATENTS' JOURNAL, published on the evenings of Tuesday and Friday in each week. Price 2d. By Post, 3d. Annual Subscription, including postage, 23s. 6d., which may be remitted by Post Office Order, made payable at the Post Office, Holborn, to Mr. Bennet Woodcroft, Clerk to the Commissioners, Patent Office.

CONTENTS OF JOURNAL.

- | | |
|---|---|
| 1. Applications for Letters Patent. | 10. Patents on which the seventh year's stamp duty of 100l. has been paid. |
| 2. Grants of Provisional Protection for six months. | 11. Patents which have become void by non-payment of the stamp duty of 100l. before the expiration of the seventh year. |
| 3. Inventions protected for six months by the deposit of a Complete Specification. | 12. Colonial Patents and Patent Law. |
| 4. Notices to proceed. | 13. Foreign Patents and Patent Law. |
| 5. Patents sealed. | 14. Weekly price lists of printed Specifications, &c. |
| 6. Patents extended. | 15. Official advertisements and notices of interest to Patentees and Inventors generally. |
| 7. Patents cancelled. | |
| 8. Patents on which the third year's stamp duty of 50l. has been paid. | |
| 9. Patents which have become void by non-payment of the stamp duty of 50l. before the expiration of the third year. | |

V.

INDEX to FOREIGN SCIENTIFIC PERIODICALS contained in the Free Public Library of the Patent Office, published on every alternate Friday evening. Price 2d. By Post, 2½d. Annual subscription, including postage, 5s. 5d., which may be remitted by Post Office Order, made payable at the Post Office, Holborn, to Mr. Bennet Woodcroft, Clerk to the Commissioners, Patent Office.

VI.

1. PATENT LAW AMENDMENT ACTS (15 & 16 Vict. cap. 83, A.D. 1852; 16 Vict. cap. 5, A.D. 1853; and 16 & 17 Vict. cap. 115, A.D. 1853); together with the RULES and REGULATIONS issued by the Commissioners of Patents for Inventions, and by the Lord Chancellor and the Master of the Rolls, under the Acts 15 & 16 Vict. c. 83, and 16 & 17 Vict. c. 115. Price 6d. By Post, 7d.

2. **APPENDIX to the SPECIFICATIONS of ENGLISH PATENTS for REAPING MACHINES.** By B. WOODCROFT, F.R.S. Price 6s. 6d. By Post, 6s. 11d.
3. **INDEX to ALL INVENTIONS PATENTED in ENGLAND from 1617 to 1854 inclusive, arranged under the greatest number of heads, with parallel references to INVENTIONS and DISCOVERIES described in the scientific works of VARIOUS NATIONS, as classified by Professor Schubarth.** By B. WOODCROFT, F.R.S. Price 1s. By Post, 1s. 1d.
The foreign works thus indexed form a portion of the Library of the Commissioners of Patents, where they may be consulted.
4. **EXTENSION of PATENTS to the COLONIES.—Abstract of Replies to the Secretary of State's Circular Despatch of January 2, 1853, on the subject of the Extension of Patents for Inventions to the Colonies. Second Edition, with Revised Table. 1861.** Price 2s. By Post, 2s. 2d.
5. **SUPPLEMENT to the SERIES of LETTERS PATENT and SPECIFICATIONS, from A.D. 1617 to Oct. 1852; consisting for the most part of Reprints of scarce Pamphlets, descriptive of the early patented Inventions comprised in that Series.**

CONTENTS.

1. **Metallica; or the Treatise of Metallica, briefly comprehending the doctrine of diverse new metallical inventions, &c.** By SIMON STURTEVANT. (*Letters Patent, dated 26th February 1611.*) Price 1s. 4d.; by post, 1s. 5d.
2. **A Treatise of Metallica, but not that which was published by Mr. Simon Sturtevant, upon his Patent, &c.** By JOHN ROVENZON. (*Letters Patent granted A.D. 1612.*) Price 4d.; by post, 4½d.
3. **A Commission directed to Sir Richard Wynne and others to inquire upon oath whether NICHOLAS PAGE or Sir NICHOLAS HALSE was the first inventor of certain kilnes for the drying of malt, &c. &c.** (*Letters Patent, Nos. 33 and 35, respectively dated 8th April 1628, and 23rd July 1635.*) Price 2d.; by post, 2½d.
4. **DUD DUDLEY'S Metallum Martis; or iron made with pit-coale, sea-coale, &c.** (*Letters Patent, Nos. 18 and 117, respectively dated 22nd February 1620, and 2nd May 1638.*) Price 8d.; by post, 9d.
5. **Description of the nature and working of the Patent Waterscoop Wheels invented by WILLIAM WHEELER, as compared with the raising wheels now in common use. By J. W. B. Translated from the Dutch by Dr. Tolhausen.** (*Letters Patent, No. 127, dated 24th June 1642.*) Price 2s.; by post, 2s. 1½d.
6. **An exact and true definition of the stupendous Water-commanding Engine invented by the Right Honourable (and deservedly to be praised and admired) EDWARD SOMERSET, Lord Marquis of WORCESTER, &c. &c.** (*Stat. 16 Car. II. c. 12. A.D. 1663.*) Price 4d.; by post, 4½d.
7. **Navigation improved; or the art of rowing ships of all rates in calms with a more easy, swift, and steady motion than oars can.** By THOMAS SAYREY. (*Letters Patent, No. 347, dated 10th January 1696.*) Price 1s.; by post, 1s. 1d.
8. **The Miner's Friend; or an engine to raise water by fire, described, &c.** By THOMAS SAYREY. (*Letters Patent, No. 356, dated 25th July 1698, and Stat. 10 & 11 Will. III. c. 51, A.D. 1699.*) Price 1s.; by post, 1s. 1d.
9. **Specimina Ichnographica; or a brief narrative of several new inventions and experiments, particularly the navigating a ship in a calm, &c.** By JOHN ALLER, M.D. (*Letters Patent, No. 613, dated 7th August 1729.*) Price 8d.; by post, 8½d.

10. A description and draught of a new-invented Machine for carrying vessels or ships out of or into any harbour, port, or river against wind and tide, or in a calm, &c. By JONATHAN HULLS. (*Letters Patent, No. 556, dated 21st December 1786.*) Price 8d.; by post, 9d.
11. An historical account of a new method for extracting the foul air out of ships, &c., with the description and draught of the machines by which it is performed, &c. By SAMUEL SUTTON, the Inventor. To which are annexed two relations given thereof to the Royal Society by Dr. Mead and Mr. Watson. (*Letters Patent, No. 602, dated 16th March 1744.*) Price 1s.; by post, 1s. 1d.
12. The letter of Master WILLIAM DRUMMOND for the construction of machines, weapons, and engines of war for attack or defence by land or sea, &c. Dated the 29th September 1626. (*Scotch Patent, temp. Car. II.*) Price 4d.

A FREE LIBRARY and READING ROOMS are open to the Public daily, from 10 till 4 o'clock, in the Office of the Commissioners of Patents, 25, Southampton Buildings, Chancery Lane. In addition to the printed Specifications, Indexes, and other publications of the Commissioners, the Library includes a Collection of the leading British and Foreign Scientific Journals, and text-books in the various departments of science and art.

Complete sets of the Commissioners' publications (each set including more than 2,700 volumes and costing for printing and paper nearly £2,600) have been presented to the authorities of the most important towns in the kingdom, on condition that the works shall be rendered daily accessible to the public, for reference or for copying, free of all charge. The following list gives the names of the towns, and shows the place of deposit, so far as ascertained, of each set of the works thus presented:—

Aberdeen (*Mechanics' Institution*).
 Belfast (*Queen's College*).
 Beverley (*Guildhall*).
 Birmingham (*Central Free Library—Reference Department, Ratcliff Place*).
 Blackburn (*Free Library and Museum, Town Hall Street*).
 Bolton-le-Moors (*Public Library, Exchange Buildings*).
 Bradford, Yorkshire (*Borough Accountant's Office, Corporation Buildings, Swain Street*).
 Brighton (*Town Hall*).
 Bristol (*City Library, King Street*).
 Burnley (*Office of the Burnley Improvement Commissioners*).
 Bury.
 Carlisle (*Public Free Library, Police Office*).
 Chester (*Town Hall, Northgate St.*).
 Cork (*Royal Cork Inst., Nelson Place*).
 Crewe (*Railway Station*).
 Darlington (*Mechanics' Institute, Skinnergate*).
 Derby (*Free Public Library*).
 Dorchester.
 Drogheda.
 Dublin (*Royal Dublin Soc., Kildare St.*).
 Dundalk (*Free Library*).

Falmouth (*Public Lib., Church St.*).
 Gateshead (*Mechanics' Institute*).
 Gorton (*Railway Station*).
 Glasgow (*Stirling's Lib., Miller St.*).
 Grimsby, Great (*Mechanics' Institution, Victoria Street*).
 Halifax.
 Hanley, Staffordshire (*Potteries (Town Hall)*).
 Hertford (*Free Public Library, Town Hall*).
 Huddersfield (*Improvement Commissioners' Offices, South Parade*).
 Hull (*Mechanics' Inst., George St.*).
 Ipswich (*Museum Library, Museum Street*).
 Keighley (*Mechanics' Inst., North St.*).
 Kidderminster (*Public Free Library, Public Buildings, Vicar Street*).
 King's Lynn, Norfolk (*Stanley Library, Athenæum*).
 Lancaster (*Mechanics' Institute, Market Street*).
 Leamington Priors (*Public Library, Town Hall*).
 Leeds (*Public Library, Infirmary Buildings*).
 Leicester (*Free Library, Wellington Street*).

Limerick (*Town Hall*).
 Liverpool (*Free Public Library, William Brown Street*).
 London (*British Museum*).
 — (*Society of Arts, John Street, Adelphi*).
 Macclesfield (*Useful Knowledge Society*).
 Maidstone (*Free Library*).
 Manchester (*Free Libs, Camp Field*).
 Montrose (*Free Library*).
 Newark (*Mechanics' Institute, Middle Gate*).
 Newcastle-upon-Tyne (*Literary and Philosophical Society*).
 Newport, Monmouth (*Commercial Room, Town Hall*).
 Northampton.
 Norwich (*Free Library, St. John's, Maddermarket*).
 Nottingham (*Free Library*).
 Oldham (*School of Arts and Sciences, Lyceum*).
 Oxford (*Public Free Library Town Hall*).
 Paisley (*Government School of Design, Gilmour Street*).
 Plymouth (*Mechanics' Institute, Princess Square*).
 Preston, Lancashire (*Dr. Shepherd's Library, the Institution, Avenham*).

Reading (*Literary, Scientific, and Mechanics' Institution, London St.*).
 Rochdale (*Commissioners' Rooms, Smith Street*).
 Rotherham (*Board of Health Offices, Howard Street*).
 Salford (*Royal Museum and Library, Peel Park*).
 Sheffield (*Free Public Library, Surrey Street*).
 Shrewsbury (*Public Museum, College Street*).
 Southampton (*Hartley Institution*).
 Stirling (*Burgh Library, Town House, Broad Street*).
 Stockport (*Museum, Vernon Park*).
 Sunderland (*Corporation Museum Athenæum, Fawcett Street*).
 Wakefield (*Mechanics' Institution, Barstow Square*).
 Warrington (*The Museum and Library*).
 Waterford (*Town Hall, The Mall*).
 Wexford (*Mechanics' Institute, Crescent Quay*).
 Wigan.
 Wolverhampton (*School of Practical Art, Darlington Street*).
 Wolverton (*Railway Station*).
 York (*Lower Council Chamber, Guildhall*).

The Commissioners' publications have also been presented to the following Public Offices, Seats of Learning, Societies, British Colonies, and Foreign States :—

Public Offices, &c.

Admiralty—Director of Works' Department.
 Chief Constructor's Department.
 Chatham Dockyard.
 Sheerness ditto.
 Portsmouth ditto.
 Devonport ditto.
 Pembroke ditto.
 Artillery Institute, Woolwich.
 Board of Trade, Whitehall.

Ordnance Office—Pall Mall.
 Small Arms Factory Enfield.
 War Office, Pall Mall.
 India Office.
 Royal School of Mines, &c., Jermyn Street, Piccadilly.
 Dublin Castle, Dublin.
 Record and Writ Office, Chancery, Dublin.
 Office of Chancery, Edinburgh.

Seats of Learning and Societies.

Cambridge University.
 Trinity College, Dublin.

Queen's College, Galway.
 Incorporated Law Society, Chancery Lane, London.

British Colonies.

Antigua.
 Barbados.
 British Guiana.
 Canada—Library of Parliament, Ottawa.
 Bureau of Agriculture, Toronto.
 Board of Arts and Manufactures, Montreal.
 Cape of Good Hope.
 Ceylon.

India—Bengal.
 Bombay.
 Madras.
 N.-W. Provinces.
 Jamaica.
 Malta.
 Mauritius.
 New Brunswick.
 Newfoundland.
 New South Wales.
 New Zealand.
 Nova Scotia.

Prince Edward Island.
 South Australia—Colonial Institute, Adelaide.
 Tasmania.
 Trinidad.
 Victoria—Parliamentary Library, Melbourne.
 Patent Office, Melbourne.
 Public Library, Melbourne.

Foreign States.

Argentine Republic—Buenos Ayres.
 Austria—Handels Ministerium, Vienna.
 Belgium—Ministère de l'Intérieur, Brussels.
 Musée de l'Industrie, Brussels.
 France—Bibliothèque Nationale, } Paris.
 Conservatoire des Arts et Métiers, }
 Hôtel de Ville, }
 Germany—Alsace—Société Industrielle, Mulhouse.
 Bavaria—Königliche Bibliothek, Munich.
 Gotha—Ducal Friedenstein Collection.
 Prussia—Gewerbe-Akademie, Berlin.
 Königliche Bibliothek, Berlin.
 Königliche Polytechnische Schule, Hanover.
 Saxony—Polytechnische Schule, Dresden.
 Württemberg—Bibliothek des Musterlagers, Stuttgart.
 Italy—Uffizio delle Privative, Florence.
 Netherlands—Harlem.
 Russia—Bibliothèque Impériale, St. Petersburg.
 Spain—Madrid.
 Sweden—Teknologiska Institutet, Stockholm.
 United States—Patent Office, Washington.
 Astor Library, New York.
 State Library, Albany.
 Franklin Institute, Philadelphia.
 Free Library, Boston.
 Library Company, Philadelphia.
 Library Association, Chicago.
 Peabody Institute, Baltimore.
 Historical Society, Madison, Wisconsin.
 Cornell University, Ithaca, N.Y.
 Mercantile Library, St. Louis.

Grants of complete series of Abridgments of Specifications have been made to the undermentioned Mechanics' Literary and Scientific Institutions:—

Aberystwith (<i>Literary and Working Men's Reading Room</i>).	Bodmin (<i>Literary Institution</i>).
Alnwick (<i>Scientific and Mechanical Institution</i>).	Bolton (<i>Mechanics' Institute</i>).
Altrincham (<i>Altrincham and Bowdon Literary Institution</i>).	(<i>School of Art</i>).
Ashby-de-la-Zouch (<i>Mutual Improvement Society</i>).	Bradford, near Manchester (<i>Bradford Working Men's Club</i>).
Bacup (<i>Mechanics' Institution</i>).	, Yorkshire (<i>Library and Literary Society</i>).
Ballymoney (<i>Town Hall</i>).	(<i>Mechanics' Institute</i>).
Banbridge (<i>Literary and Mutual Improvement Society</i>).	Brampton, near Chesterfield (<i>Local Museum and Literary Institute</i>).
Banbury (<i>Mechanics' Institution</i>).	Breage, Cornwall (<i>Breage Institution</i>).
Barnstaple (<i>Literary and Scientific Institution</i>).	Bristol (<i>Athenæum</i>).
Bath (<i>Athenæum</i>).	(<i>Institution</i>).
Batley (<i>Mechanics' Institution</i>).	(<i>Law Library Society</i>).
Battle (<i>Young Men's Christian Association</i>).	(<i>Library</i>).
Belfast (<i>Athenæum</i>).	Bromsgrove (<i>Literary and Mechanics' Institute</i>).
Berkhamstead, Great (<i>Working Men's College</i>).	Burnley (<i>Mechanics' Institution</i>).
Birmingham (<i>Birmingham Heath and Smethwick Working Men's Club and Institute</i>).	(<i>Literary Institution</i>).
(<i>Bloomsbury Institution</i>).	Burslem (<i>Wedgewood Institute</i>).
(<i>Central Lending Library</i>).	Bury St. Edmund's (<i>Mechanics' Institution</i>).
(<i>Deritend Working Men's Association</i>).	Canterbury (<i>Working Men's Club</i>).
(<i>Graham Street Institution</i>).	Cardiff (<i>Free Library and Museum</i>).
	Cardigan (<i>Mechanics' Institute</i>).
	Carharrack (<i>Literary Institute</i>).
	Carmarthen (<i>Literary and Scientific Institution</i>).
	Cheltenham (<i>Literary and Philosophical Society</i>).

Cheltenham (*Permanent Library*).
 — (*Working Men's Club*).
 Chertsey (*Literary and Scientific Institution*).
 Chester (*City Library and Reading Room*).
 Chesterfield (*Mechanics' Institution*).
 Chichester (*Literary and Philosophical Society*).
 — (*Literary Society and Mechanics' Institute*).
 Coalbrookdale (*Literary and Scientific Institution*).
 Cockermouth (*Mechanics' Institution*).
 Colchester (*Literary Institution*).
 — (*Young Men's Christian Association*).
 Compstall (*Athenæum*).
 Coventry (*Free Library*).
 — (*Institute*).
 — (*School of Art*).
 Crediton (*Working Men's Club*).
 Dartmouth (*Mutual Improvement Society*).
 Deal (*Deal and Walmer Institute*).
 Denton (*Denton and Haughton Mechanics' Institution*).
 Derby (*Mechanics' Institution*).
 Devonport (*Mechanics' Institute*).
 Dewsbury (*Mechanics' Institution*).
 Doncaster (*Free Library*).
 — (*Great Northern Mechanics' Institute*).
 Dorchester (*County Museum and Library*).
 — (*Working Men's Institute*).
 Dudley (*Mechanics' Institution*).
 Dukinfield (*Mechanics' Institute*).
 — (*Village Library and Reading Room*).
 Dumbarton (*Philosophical and Literary Society*).
 Dumfries (*Mechanics' Institution*).
 Durham (*Mechanics' Institute*).
 Eagley, Bolton-le-Moors (*Library and Institute*).
 Earlestown, Newton-le-Willows (*Mutual Improvement Society*).
 Edinburgh (*Horological Society*).
 — (*Mechanics' Library*).
 — (*Philosophical Institution*).
 — (*Royal Society of Arts*).
 — (*Royal Scottish Society of Arts*).
 — (*Subscription Library*).
 — (*Watt Institution and School of Art*).
 — (*Working Men's Club*).
 Egham (*Literary Institute*).
 Egremont (*Mechanics' Institution*).
 Exeter (*Devon and Exeter Institution*).
 Faversham (*Institute*).
 Frome (*Literary and Scientific Institution*).
 Gainsborough (*Literary, Scientific and Mechanics' Institute*).
 Garforth, near Leeds (*Working Men's Club*).

Glasgow (*Athenæum*).
 — (*Central Working Men's Club and Institute*).
 — (*Institution of Engineers in Scotland*).
 — (*Mechanics' Institution, Bath Street*).
 — (*Philosophical Society*).
 Grantham (*Public Literary Institution*).
 Gravesend (*Gravesend and Milton Library and Reading Rooms*).
 Greenwich (*Working Men's Institute*).
 Guernsey (*Mechanics' Institution and Literary Society*).
 — (*Working Men's Association*).
 Guildford (*Mechanics' Institute*).
 Halesworth (*Mechanics' Institute*).
 Halifax (*Literary and Philosophical Society*).
 — (*Mechanics' Institute*).
 — (*Working Men's College*).
 Haslingdon (*Institute*).
 Hastings (*Literary and Scientific Institute*).
 Hawarden (*Literary Institution*).
 Hebden Bridge, near Todmorden (*Mechanics' Institution*).
 Helston (*Reading Room and Library*).
 Hereford (*Natural History, Philosophical, Antiquarian, and Literary Society*).
 Hertford (*Literary and Scientific Institution*).
 Heywood (*Mechanics' Institute*).
 Holbeck (*Mechanics' Institution*).
 Hollingwood (*Working Men's Club*).
 Holywell Green (*Mechanics' Institution*).
 Huddersfield (*Mechanics' Institution*).
 Hull (*Church Institute*).
 — (*Literary, Scientific and Mechanics' Institute*).
 — (*Lyceum Library*).
 — (*Royal Institution, Albion Street*).
 — (*Young People's Institute*).
 Huntingdon (*Literary and Scientific Institution*).
 Kendal (*Christian and Literary Institute*).
 — (*Working Men's Institute*).
 Kidderminster (*Mechanics' Institute*).
 Lancaster (*Mechanics' Institute and School of Science*).
 Leeds (*Church Institute*).
 — (*Library*).
 — (*Mechanics' Institution and Literary Society*).
 — (*Philosophical and Literary Society*).
 — (*Working Men's Institute*).
 — (*Young Men's Christian Association*).
 Leighton Buzzard (*Working Men's Mutual Improvement Society*).
 Leith (*Mechanics' Subscription Library*).
 Lewes (*Mechanics' Institute*).
 — (*School of Science and Art*).
 Lincoln (*Mechanics' Institute*).

Liverpool (Institute).
 _____ (Mechanics' Institute).
 _____ (Medical Institution).
 _____ (Polytechnic Society).
 Llanelli (Chamber of Commerce and Reading Room).
 London (Athenaeum Club, Pall Mall).
 _____ (Beaumont Institute, Mile End).
 _____ (Bedford Working Men's Institute, Spitalfields).
 _____ (Birkbeck Institution, Southampton Buildings, Chancery Lane).
 _____ (Bow Common Working Men's Club, Devon's Road, Bow Common).
 _____ (Christchurch Working Men's Club, New Street, Lark Hall Lane, Clapham).
 _____ (Clerkenwell Club, Lower Roseman Street).
 _____ (Holloway Working Men's Club and Institute, Holloway Road).
 _____ (Literary and Scientific Society, Wellington Street, Islington).
 _____ (Literary and Scientific Institution, Walworth).
 _____ (St. James and Soho Working Men's Club, Rupert Street, Soho).
 _____ (St. Mary Charterhouse Working Men's Club, Golden Lane).
 _____ (South London Working Men's College, Blackfriars Road).
 _____ (Southwark Working Men's Club, Broadcall, Stamford Street).
 _____ (Spring Vale Institution, Hammersmith).
 _____ (Working Men's Club, Brixton Hill).
 _____ (Working Men's Club, St. Mark's, Victoria Docks).
 _____ (Working Men's Club and Institute, Battersea).
 _____ (Working Men's Club and Institute Union, Strand).
 _____ (Working Men's College, Great Ormond Street).
 Loughborough (Working Men's Club and Institute).
 Madeley (Anstice Memorial, Workmen's Club and Institute).
 Manchester (Ancoats Branch Free Library).
 _____ (Athenaeum).
 _____ (Carnfield Free Lending Library).
 _____ (Chorlton and Ardwick Branch Free Library).
 _____ (Hulme Branch Free Library).
 _____ (Law Library).
 _____ (Mechanics' Institution).
 _____ (Natural History Museum, Peter Street).
 _____ (Owen's College).
 _____ (Portico Library, Mosely Street).
 _____ (Rochdale Road Branch Free Library).
 _____ (Royal Exchange Library).

Mansfield (Co-operative Industrial Society).
 _____ (Mechanics', Artizans', and Apprentices' Library).
 Melksham (Mutual Improvement Society).
 Merthyr-Tydfal (South Wales Institute of Engineers).
 Middlesbrough (Iron and Steel Institution).
 _____ (Mechanics' Institution).
 Modbury (Mechanics' Institution).
 Mossley (Mechanics' Institute).
 Newark (Mechanics' Institute).
 Newcastle-upon-Tyne (Mechanics' Institution).
 _____ (Working Men's Club).
 New Mills, near Stockport (Mechanics' Institute).
 Newport, Isle of Wight (Young Men's Society and Reading Room).
 Northampton (Mechanics' Institute).
 Nottingham (Free Library).
 _____ (Mechanics' Institution).
 _____ (Subscription Library, Bromley House).
 Oldham (Analytic Literary Institution).
 _____ (Mechanics' Institution, Werneth).
 Ormskirk (Public Library).
 Oswestry (Institute).
 Patricroft (Mechanics' Institution).
 Pembroke Dock (Mechanics' Institute).
 Pendleton (Mechanics' Institution).
 Penryn (Working Men's Club and Reading Room).
 Perth (Mechanics' Library, High Street).
 Peterborough (Mechanics' Institution).
 Plymouth (Working Men's Institute).
 Poole (Literary and Scientific Institution).
 _____ (Mechanics' Institute).
 Portsea (Athenaeum and Mechanics' Institution).
 Preston (Avenham Institution).
 _____ (Institution for the Diffusion of Knowledge).
 Rawtenstall (Mechanics' Institution).
 Richmond (Working Men's College).
 Rotherham (Rotherham and Masbro' Literary and Mechanics' Institute).
 Royston (Institute).
 Ryde, Isle of Wight (Philosophical and Scientific Society).
 Saffron Walden (Literary and Scientific Institution).
 St. Just (Institution).
 St. Leonard's (Mechanics' Institution).
 Salford (Working Men's Club).
 Saltire (Literary Institute).
 Selby (Mechanics' Institute).
 Sheffield (Branch Free Library).
 _____ (Literary and Philosophical Society, School of Arts).
 Skipton, Yorkshire (Mechanics' Institute).

Southampton (*Hartley Institution*).
 — (*Polytechnic Institution*).
 Southport (*Athenæum*).
 South Shields (*Working Men's Institute and Club*).
 Spalding (*Mechanics' Institute*).
 — (*Christian Young Men's Association*).
 Staines (*Literary and Scientific Institution*).
 — (*Mechanics' Institute and Reading Room*).
 Stamford (*Institution*).
 Stourbridge (*Church of England Association*).
 — (*Iron Works Reading Room and Library*).
 — (*Mechanics' Institution*).
 — (*Working Men's Institute*).
 Stratford (*Working Men's Hall*).
 Sunderland (*Working Men's Club*).
 Swansea (*Royal Institution of South Wales*).
 — (*Working Man's Institute*).
 Tavistock (*Mechanics' Institute*).
 — (*Public Library*).
 Thornton, near Bradford (*Mechanics' Institute*).
 Thornton Heath, Croydon (*Workmen's Club*).
 Todmorden (*Mechanics' Institution*).
 Truro (*Cornwall County Library*).
 — (*Institution*).
 — (*Royal Institution of Cornwall*).

Tunbridge Wells (*Mechanics' Institution*).
 — (*Society of Literature and Science*).
 Turton near Bolton (*Chapel Town Institute*).
 Tynemouth (*Free Public Library*).
 Ulverston (*Temperance Hall*).
 Uttoxeter (*Mechanics' Literary Institute*).
 Wakefield (*Mechanics' Institute*).
 Watford (*Literary Institute*).
 Wells, Somerset (*Mechanics' Institution, Grove Lane*).
 — (*Young Men's Society*).
 Whaleybridge (*Mechanics' Institute*).
 Whitby (*Institute*).
 — (*Museum*).
 — (*Subscription Library*).
 Whitehaven (*Mechanics' Institute*).
 — (*Working Men's Reading Room*).
 Whitstable (*Institute*).
 Wisbeach (*Mechanics' Institute*).
 Wolverhampton (*Library*).
 Wolverton (*Institute*).
 Woodbridge (*Literary and Mechanics' Institute*).
 — (*Working Men's Hall*).
 Worcester (*Railway Literary Institute*).
 — (*Workman's Hall*).
 Workington (*Mechanics' Institution*).
 York (*Church Institute*).
 — (*Institute of Popular Science, &c.*).
 — (*Railway Library*).

Presentations of portions of the Works, published by order of the Commissioners of Patents, have been made to the following Libraries:—

Armagh (*Town Clerk's Office*).
 Aylesbury (*Mechanics' Institution and Literary Society, Kingebury*).
 Birmingham (*Institution of Mechanical Engineers, Newhall Street*).
 Boston, Lincolnshire (*Public Offices, Market Place*).
 Cambridge (*Free Library, Jesus Lane*).
 Chester (*Mechanics' Institute, St. John Street*).
 Coalbrookdale (*Literary and Scientific Institution*).
 Coventry (*Watchmakers' Association*).
 Darwen, Over (*Free Public Library*).
 Dublin (*Dublin Library, D'Olier Street*).
 Edinburgh (*Horological Society*).
 Ennis (*Public Library*).
 Gloucester (*Working Men's Institute, Southgate Street*).
 Ipswich (*Mechanics' Institute, Tavern Street*).
 Kew (*Library of the Royal Gardens*).

Kingston, Herefordshire (*Reading Institute*).
 Leominster (*Literary Institute*).
 London (*House of Lords*).
 — (*House of Commons*).
 — (*Hon. Soc. of Gray's Inn*).
 — (*Hon. Soc. of Inner Temple*).
 — { " " *Lincoln's Inn*.
 — { " " *Middle Temple*.
 — (*Aeronautical Society*).
 — (*British Horological Institution*).
 — (*General Post Office*).
 — (*Institution of Civil Engineers*).
 — (*Odontological Society*).
 — (*Royal Society*).
 — (*United Service Museum*).
 Manchester (*Literary and Philosophical Society, George Street*).
 — (*Mechanics' Institution, David Street*).

Newcastle-upon-Tyne (*North of England Institute of Mining Engineers*).
 Oxford (*Bodleian Library*).
 Stretford, near Manchester (*Mechanics' Institute*).

Swindon, New (*Mechanics' Institute*).
 Tamworth (*Library and Reading Room, George Street*).
 Yarmouth, Norfolk (*Public Library, South Quay*).

British Colonies and Foreign States.

British Columbia—*Mechanics' Institute, Victoria.*

— *Public Library, New Westminster.*

France—*Academy of Science, Paris.*

Netherlands—*Bibliothèque de l'Ecole Polytechnique de Delft.*

Russia—*Imperial Technological Institute, St. Petersburg.*

Smyrna—*Literary and Scientific Institute.*

United States—*American Academy of Arts and Sciences, Boston.*

United States—*American Institute, New York.*

— *American Society of Civil Engineers, New York.*

— *Industrial University, Champaign, Illinois.*

— *Mechanics' Institute, San Francisco.*

— *Odd Fellows' Library Association, San Francisco.*

— *Smithsonian Institute, Washington.*

— *Young Men's Christian Association, Scranton, Pennsylvania.*

PATENT OFFICE MUSEUM, SOUTH KENSINGTON.

THIS Museum is open to the public daily, free of charge. The hours of admission are as follows :—

Mondays, Tuesdays, and Saturdays, 10 A.M. till 10 P.M.

Wednesdays, Thursdays, and Fridays, from 10 A.M. till 4, 5, or 6 P.M., according to the season.

If any Patentee should be desirous of exhibiting a model of his invention in London, he may avail himself of this Museum, which has been visited since its opening on the 22nd June 1857 by more than 2,200,000 persons. The model will be received either as a gift or loan ; if deposited as a loan, it will be returned on demand. Before sending a model, it is requested that the size and description of it shall first be given to the Superintendent of the Patent Office Museum.

GALLERY OF PORTRAITS OF INVENTORS, DISCOVERERS, AND INTRODUCERS OF USEFUL ARTS.—This Collection, formed by Mr. Woodcroft, and first opened to public view in 1853, is now exhibited in the Patent Office.

Presentations or loans of Portraits, Medallions, Busts, and Statues, in augmentation of the Collection, are solicited. They will be duly acknowledged in the Commissioners of Patents' Journal, and included in the next edition of the Catalogue.

All communications relating to the Patent Office, or to the Museum and Portrait Gallery, to be addressed to B. WOODCROFT, Clerk to the Commissioners of Patents and Superintendent of the Patent Office Museum, at the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

NOTICE.

THE Abridgments delivered at the Patent Office by the Applicants for Letters Patent will in future be published weekly (commencing on Friday, July 14), with Indexes of Persons and Subjects. In the body of the work the Abridgments of the Provisional and Complete Specifications will be published in regular numerical order at the expiration of the term of six months from the date of application. But each weekly number will have an appendix, containing the Abridgments open to public inspection before the expiration of the term of six months, in consequence of the Patentees having filed their Final Specifications, and also the Abridgments of Complete Specifications just received. These Abridgments will be subsequently printed in the body of the work in their proper places, in order to preserve the numerical and chronological arrangement of the book. In the indexes of each successive number all the previous indexes will be incorporated until the end of the year; and then the last indexes only should be retained to bind with the fifty-two weekly parts in one volume for the year.

B. WOODCROFT.

July 10, 1871.

. The work referred to in the above notice is published (under the title of "Chronological and Descriptive Index of Patents," &c.) on Friday in each week, and is forwarded, post free, to subscribers. Terms 22s. per annum. Subscriptions received at the Sale Room of the Patent Office, 25, Southampton Buildings, Holborn, where also single copies, at 4d. each, may be obtained. Post Office Orders to be made payable at the Post Office, Holborn to Mr. Bennet Woodcroft, Clerk to the Commissioners of Patents.



